

**United States Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment  
DeBeque Pipeline project**

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Grand Junction Field Office  
2815 H Road  
Grand Junction, Colorado 81506

CO-130-2013-0030-EA

July 2014



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## CHAPTER 1. INTRODUCTION

### 1.1 IDENTIFYING INFORMATION

The DeBeque Pipeline Project is a coordinated effort between Black Hills Plateau Production, LLC (Black Hills); Red Rock Gathering, LLC (Red Rock); and the Bluestone Management Committee (Bluestone), which is an intergovernmental entity composed of the Colorado River Water Conservation District (CRWCD) and the Bluestone Water Conservancy District (BWCD). The project includes three pipelines—gas gathering (Red Rock), produced water (Black Hills), and raw water (Bluestone)—to be installed concurrently within a single construction ROW. The pipelines would be constructed and operated to support development by Black Hills of federal oil and gas leases in the Homer Deep Unit.

To obtain BLM approval to cross BLM-administered federal lands with a portion of their proposed pipeline, Black Hills filed an SF-299 application with the Bureau of Land Management (BLM) in May 2013; Red Rock filed an SF-299 application in July 2013 (updated in October 2013); and Bluestone filed an SF-299 in October 2013. A Plan of Development (POD) was submitted to the Bureau of Land Management Grand Junction Field Office (BLM-GJFO) by the proponents in November 2013 (Black Hills et al. 2013). Black Hills is the lead proponent for permitting the project. Red Rock would construct the project, and each company would operate and maintain its respective pipeline.

This Environmental Assessment (EA) was prepared in conformance with policy guidance provided in the BLM National Environmental Policy Act (NEPA) Handbook H-1790-1 (BLM 2008). The BLM Handbook provides instructions for compliance with Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations - CFR §1500-1508) and U.S. Department of the Interior (DOI) Manual 516 DM 1-7 on NEPA compliance (DOI 2005).

The companies' respective need for the Proposed Action is to facilitate the efficient, economical, and environmentally appropriate transport of three types of fluids associated with the oil and gas development. These are to (1) transport produced water from federal oil and gas leases (Black Hills), (2) transport natural gas produced from federal leases (Red Rock), and (3) transport raw water for use in drilling and completion operations at the federal wells (Bluestone).

Although the proposed pipelines would be associated primarily with federal oil and gas leases in the Homer Deep Unit, approximately 75% of the raw water, to be pumped from the Colorado River, would be delivered to the Town of De Beque for agricultural purposes

The project would partially support development of a total of 17 federal oil and gas leases held by Black Hills in the Homer Deep Unit (HDU). The Red Rock gas gathering pipeline would be used to transport natural gas from the HDU to the existing Red Rock Compressor Station on Mesa County V.2 Road (adjacent to the proposed DeBeque Pumping Station). The Black Hills pipeline would be used to transport water to well locations for completion operations and to transport produced water from well locations to water handling facilities at the proposed DeBeque Pumping Station. The Bluestone raw water pipeline would transport water from the Colorado River to the proposed water storage tanks (located within the existing HDU-CF#2), where it would be made available to industrial users and also to the Reservoir and Town ditches for agricultural use and for use by the Town of De Beque. The project would allow natural gas to be delivered to markets for the use and benefit of the public. It would also provide supplemental irrigation water to local agricultural users.

Black Hills is conducting exploration and development of its Piceance Basin mineral leases near De Beque. The driving factors are horizontal drilling technologies and hydraulic fracturing, a part of the

well completion process to unlock hydrocarbons in the Mancos Formation. Necessary components in this development are water for well completions and infrastructure to transport water and gather, process, compress, and sell the natural gas. Black Hills would use water delivered by Bluestone for the well completions. Black Hills is proposing future water storage ponds at the DeBeque Pumping Station to enable produced water to be re-used for well completions. Because no storage capacity for the produced water currently exists, water supply from surface water is needed initially for the well completions. As produced water is accumulated, it would be mixed with the raw water supply for well completions. Black Hills has contracted with Red Rock to gather, process, compress, and sell the natural gas.

## **1.2 Existing and Current Developments**

On September 2, 1984, the U.S. Army Corps of Engineers (USACE) approved the Kobe Project through Section 404 Permit Application No. 8752. The U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion for the Kobe Project on December 21, 1984. The Kobe Project included a 24-inch diameter, 17,700-foot-long (3.35-mile) pipeline and a reinforced concrete intake structure along with a pumping facility on the Colorado River. In April 1985, the BLM issued a ROW Grant (COC40227) for the portion of the Kobe Project (1,700 feet) across BLM lands. This portion of the project, which followed a route similar to the Proposed Action, was not constructed, and ROW Grant COC40227 will be terminated on the basis of abandonment (43 CFR 2807.17(c)). Of the permitted 17,700 feet of pipeline, a length of 3,700 feet was constructed on private lands in 1989 (Map 1.2-2). The concrete intake structure and the pumping facility were also constructed in 1989.

The Kobe Lite Project, currently under development on private lands under a separate USACE authorization, would operate in conjunction with the previously authorized and constructed Kobe Project facilities and deliver water to the Reservoir Ditch where it crosses under Mesa County V.2 Road and to the proposed Black Hills storage ponds at the DeBeque Pumping Station. The pumping facility, which was included in the analysis for the Kobe project, would be constructed in 2014 as part of the Kobe Lite Project on the site constructed in 1989. The Kobe Lite Pump Station will pump raw water from the Colorado River to a point on Roan Creek near its confluence with Dry Fork, upstream from the headgates of the Reservoir Ditch and the Town Ditch. The water pumped by the Kobe Lite project will be used for a variety of purposes, including agricultural irrigation, municipal, and industrial uses. Operation of the Kobe project in conjunction with the Kobe Lite Project facilities will not increase the estimated average annual depletion included in previous authorizations (i.e., 20 cfs).

Construction of the Red Rock Compressor Station was completed in first quarter 2014 in the northeastern corner of the parcel where the DeBeque Pumping Station is proposed. The parcel is owned by Red Rock. While the project would connect to the Red Rock Compressor Station (Red Rock gas gathering pipeline), existing Encana and Maralex pipelines will also feed the Compressor Station. The Compressor Station site includes approximately 14 acres.

CASEFILE/PROJECT NUMBER: DOI-BLM-CO-130-2013-0030-EA

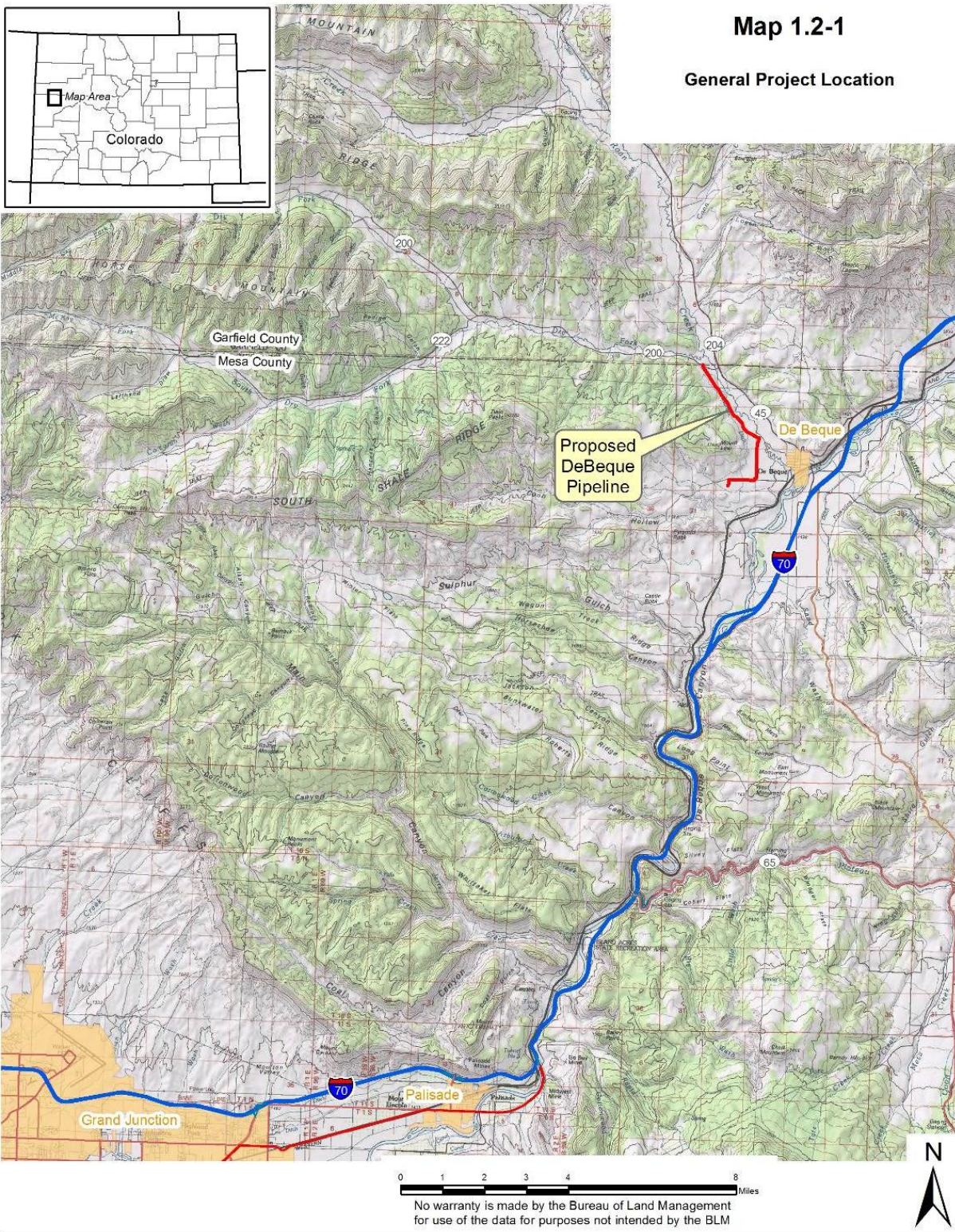
PROJECT NAME: DeBeque Pipeline Project EA

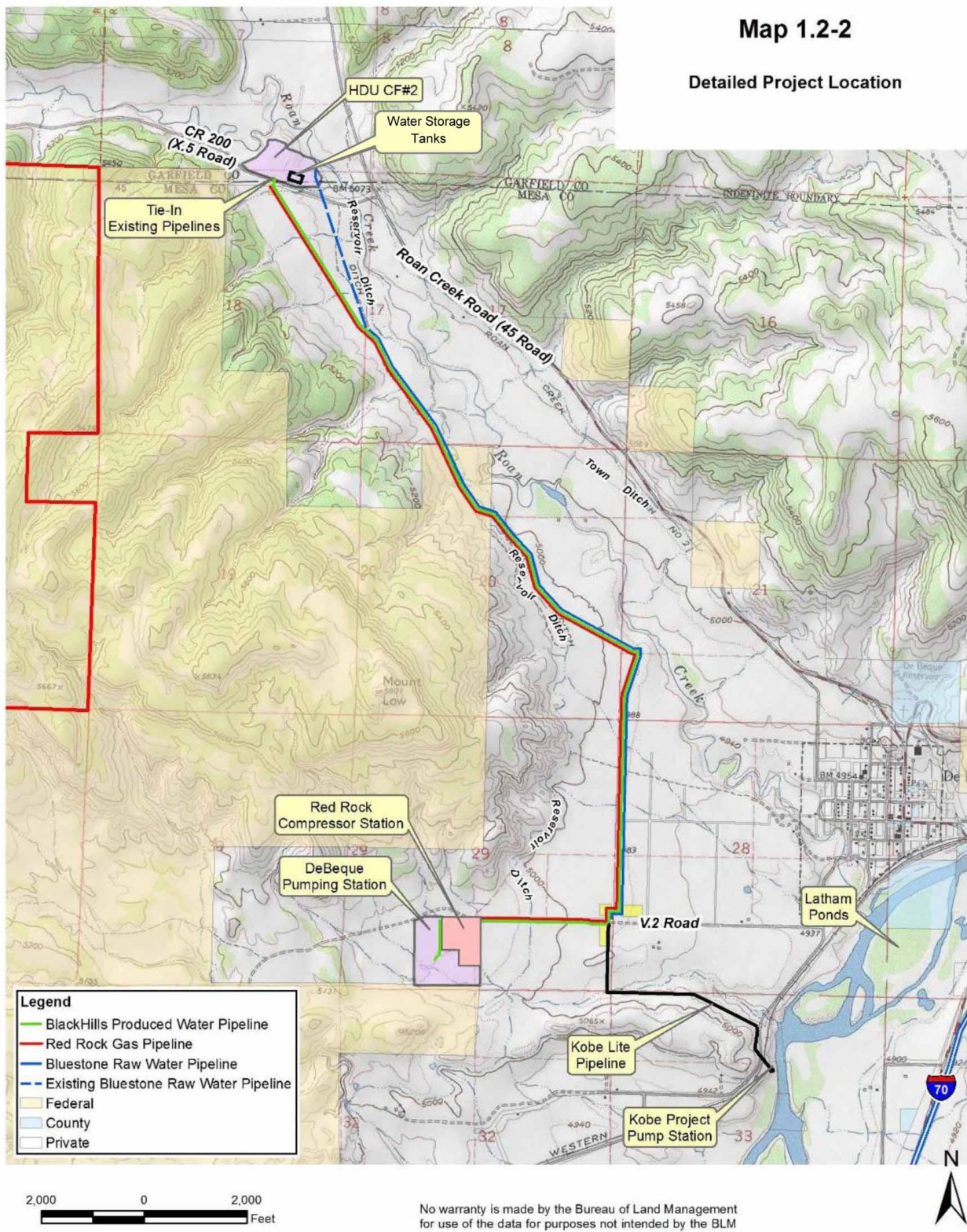
PLANNING UNIT: Grand Junction Field Office

## **1.2 PROJECT LOCATION AND LEGAL DESCRIPTION**

### **PROJECT LOCATION**

The alignment of the Proposed Action is as follows: From north to south, the 4-mile-long project area begins at the Garfield/Mesa County line at Mesa County Road (CR) 200 (Mesa County X.5 Road) near Roan Creek at the existing Black Hills Homer Deep Unit Centralized Facility #2 (HDU-CF#2), where water storage tanks would be built. From that point, the alignment follows along the existing TransColorado pipeline ROW generally southeast and between the existing corridor and Roan Creek until entering Section 21, Township 8 South (T8S), Range 97 West (R97W). From there it proceeds due south to Mesa County V.2 Road (Winter Flats Road), where it turns west and parallels the road until its terminus at the proposed DeBeque Pumping Station. The town of De Beque is located to the east of the southern end of the project. Map 1.2-1 shows the general location of the project. Map 1.2-2 is a more detailed location map, including surface ownership.





## LEGAL DESCRIPTION

### **BLM-Administered Lands**

6<sup>th</sup> Principal Meridian, Mesa County, Colorado  
T. 8 S., R. 97 W., Sec. 20, NE $\frac{1}{4}$ NW $\frac{1}{4}$

### **Private Lands**

6<sup>th</sup> Principal Meridian, Garfield County, Colorado  
T. 8 S., R. 97 W., sec. 7, NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$ ;  
sec. 18, NW $\frac{1}{4}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$ .

6<sup>th</sup> Principal Meridian, Mesa County, Colorado  
T. 8 S., R. 97 W., sec. 18, NE $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ ;  
sec. 17, SW $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ ;  
sec. 20, NW $\frac{1}{4}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$ ;  
sec. 21, NW $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ ;  
sec. 28, NW $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ ;  
sec. 29, NE $\frac{1}{4}$ SE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ ;  
sec. 29, SE $\frac{1}{4}$ SW $\frac{1}{4}$ .

## **1.3 PURPOSE AND NEED**

The purpose of the Proposed Action is to provide access across public land to allow for the construction, operation, maintenance, and abandonment the DeBeque Pipeline Project, and to support the development by Black Hills of its Homer Deep Unit federal oil and gas leases.

The need for this action by the BLM is established as a responsibility under the Mineral Leasing Act (MLA) and the Federal Land Policy and Management Act (FLPMA) to respond to requests for ROW Grants authorizing the use of public land for the construction, operation, maintenance, and abandonment of projects such as the Proposed Action. The Proposed Action would require issuance by the BLM of a ROW Grant because the parcel to be crossed is not within the boundary of the federal oil and gas leases held by Black Hills as the Homer Deep Unit.

## **1.4 PLAN CONFORMANCE REVIEW**

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Grand Junction Resource Management Plan

Date Approved: January 1987

Decision Number/Page: Page 2-7

Decision Language: The objective of the GJFO RMP under Public Utilities Management is "to respond in a timely manner, to requests for utility authorizations on public land while considering environmental, social, economic, and interagency concerns."

The objective of the GJFO RMP under the Oil and Gas Management is to make public land available for economically and environmentally sound exploration and development projects;

to avoid health and safety hazards; to protect important, sensitive resource values from unacceptable impacts; and to minimize the impacts to lessees from sensitive resource protection and hazard avoidance.”

The BLM has determined that the Proposed Action would be in conformance with the Public Utilities Management and Oil and Gas Management objectives in the RMP. In its review of the Proposed Action, the BLM has determined that a decision would not result in impacts that would limit the choice of reasonable alternative actions analyzed in the Grand Junction Draft RMP and Environmental Impact Statement (EIS).

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, landform, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Threatened and endangered species (federal and state) and BLM sensitive species and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all waterbodies, including groundwater where applicable, located on or influenced by BLM-administered lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each in an environmental analysis. The findings are provided in this EA document.

## **1.5 SCOPING**

Scoping is the process by which the BLM solicits input on the issues, impacts, and potential alternatives that will be addressed, along with the extent to which those issues and impacts are analyzed in a NEPA document. Internal scoping is the use of BLM and cooperating agency staff to help determine what needs to be analyzed in a NEPA document. External scoping involves notification and opportunities for feedback from other agencies, organizations, tribes, local governments, and the public. NEPA regulations (40 CFR §1500-1508) do not require external scoping for an EA. Scoping, by posting this project on the Grand Junction Field Office NEPA website, was the primary mechanism used by the BLM to invite public involvement. The GJFO determined that no additional scoping methods were necessary due to past interest in similar projects and the limited scope of this project. No comments were received from the public for this project, based on the limited amount of disturbance associated with the project and, in particular, the small amount of disturbance on BLM land. The Project was discussed on June 17, 2013, during the GJFO Interdisciplinary Team (IDT) meeting, reviewed by resource specialists in January 2014, and posted to the GJFO website.

## **1.6 DECISION TO BE MADE**

This EA will provide BLM decision makers with information upon which to base a decision whether to authorize the use of a small area of BLM land already containing a pipeline corridor to support development of the federal oil and gas lease cited above.

The Decision Record associated with this EA does not constitute final approval for all actions, such as approval of individual ROW Grants associated with the Proposed Action. It does, however, provide the BLM's Authorized Officer (AO) with an analysis upon which to base final approval for individual project components, including individual ROW Grants.

For the Proposed Action to be authorized and a ROW Grant issued, it must also be consistent with other existing authorized activities in the project area. If allowed, the Proposed Action would include development of appropriate conditions of approval (COAs) that would be attached to the ROW Grants as stipulations consistent with the goals, objectives, and decisions of the Grand Junction Resource Area (now referred to as the GJFO) Resource Management Plan (RMP)(BLM 1987) as well as with applicable policies, regulations, and laws. The Proposed Action is consistent with the following:

- The Mineral Leasing Act of 1920 – Authorizes and governs leasing of public lands for developing deposits of coal, petroleum, natural gas, and other hydrocarbons, phosphates, and sodium in the United States, and ROWs for pipelines transporting oil, natural gas, synthetic liquid or gaseous fuels, or any refined products through federal lands.
- The Federal Land Policy and Management Act of 1976 – Reiterates that the 1970 Mining and Minerals Policy Act shall be implemented and directs that public lands be managed in a manner which recognizes the need for domestic sources of minerals and other resources.
- The Energy Policy Act of 2005 (Public Law 109-58) – Encourages energy efficiency and conservation, promotes alternative and renewable energy sources, reduces dependence on foreign sources of energy, increases domestic production, modernizes the electrical grid, and encourages the expansion of nuclear energy.

## CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES

### 2.1 INTRODUCTION

This chapter provides information on the Proposed Action and No Action Alternative. No other alternatives were identified and analyzed.

### 2.2 PROPOSED ACTION

The project would partially support development of a total of 17 federal oil and gas leases held by Black Hills in the Homer Deep Unit (HDU). The Red Rock gas gathering pipeline would be used to transport natural gas from the HDU to the existing Red Rock Compressor Station on Mesa County V.2 Road (adjacent to the proposed DeBeque Pumping Station). The Black Hills pipeline would be used to transport water to well locations for completion operations and to transport produced water from well locations to water handling facilities at the proposed DeBeque Pumping Station. The Bluestone raw water pipeline would transport water from the Colorado River to the proposed water storage tanks (located within the existing HDU-CF#2), where it would be made available to industrial users and also to the Reservoir and Town ditches for agricultural use and for use by the Town of De Beque. The project would allow natural gas to be delivered to markets for the use and benefit of the public. It would also provide supplemental irrigation water to local agricultural users.

#### 2.2.1 Existing and Current Developments

On September 2, 1984, the U.S. Army Corps of Engineers (USACE) approved the Kobe Project through Section 404 Permit Application No. 8752. The U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion for the Kobe Project on December 21, 1984. The Kobe Project included a 24-inch diameter, 17,700-foot-long (3.35-mile) pipeline and a reinforced concrete intake structure along with a pumping facility on the Colorado River. In April 1985, the BLM issued a ROW Grant (COC40227) for the portion of the Kobe Project (1,700 feet) across BLM lands. This portion of the project, which followed a route similar to the Proposed Action, was not constructed, and ROW Grant COC40227 will be terminated on the basis of abandonment (43 CFR 2807.17(c)). Of the permitted 17,700 feet of pipeline, a length of 3,700 feet was constructed on private lands in 1989 (Map 1.2-2). The concrete intake structure and the pumping facility were also constructed in 1989.

#### 2.2.2 Proposed Pipeline Facilities

The Black Hills produced water pipeline and the Red Rock gas gathering pipeline would originate at the proposed DeBeque Pumping Station in the SW¼ of Section 29, T8S, R97W, and proceed east, then north, and then northwest to a tie-in with existing pipelines at the HDU-CF#2. The Bluestone raw water pipeline would originate north of Mesa County V.2 Road, at a connection with the Kobe Lite project and follow the route of the other pipelines to within 3,257 feet south of the HDU-CF#2, where it would tie-in with an existing pipeline that continues approximately 3,700 feet to the outlet at Roan Creek (Map 1.2-1). The water storage tanks are proposed to be located within the HDU-CF#2 footprint. The proposed pipelines would parallel the existing TransColorado Pipeline, located west of the proposed alignment, for most of the route.

Table 2.2-1 presents the purpose, diameter, and length of each pipeline across BLM land, all within the GJFO, and private lands.

**Table 2.2-1**  
**Summary of Landownership Affected by the DeBeque Pipeline Project**

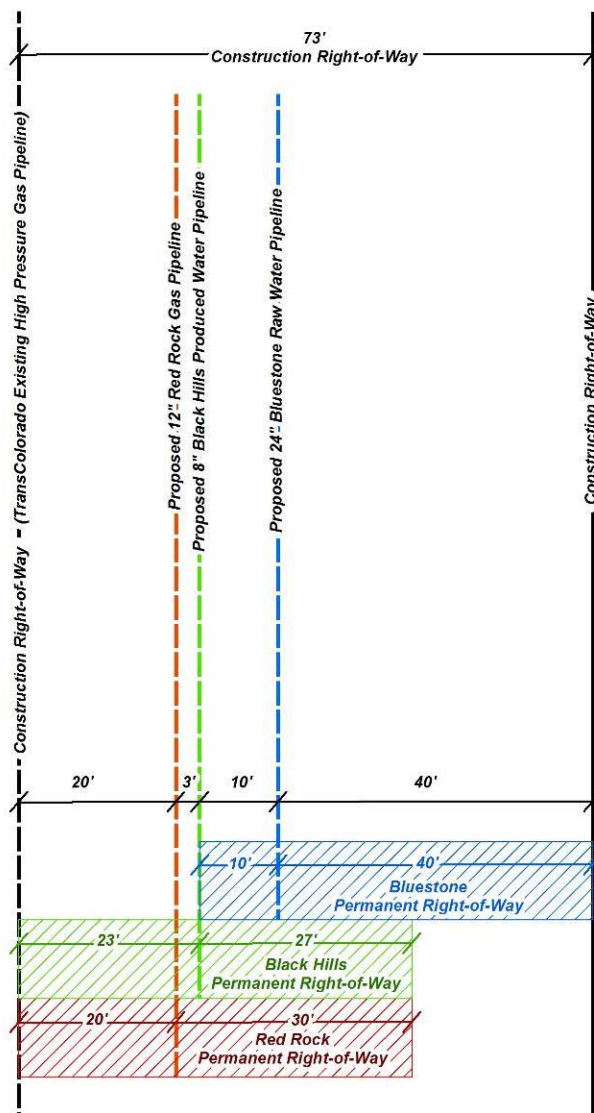
<i><b>Pipeline</b></i>	<i><b>Purpose</b></i>	<i><b>Diameter</b></i>	<i><b>Length (miles)</b></i>		
			<i><b>BLM</b></i>	<i><b>Private</b></i>	<i><b>Total</b></i>
Black Hills	Produced Water Delivery	8-inch	0.3	3.82	4.12
Red Rock	Gas Gathering	12-inch	0.3	3.48	3.78
Bluestone	Raw Water Delivery	24-inch	0.3	2.31	2.61

The three pipelines would be installed concurrently within a 73-foot-wide disturbance width (Figures 2.2-1 and 2.2-2). Where Bluestone connects with the existing pipeline (at the north end of the route), the construction ROW would be decreased from 73 feet to 50 feet to accommodate only two pipelines (Black Hills pipeline and Red Rock) on private lands. The 73-foot disturbance width would contain overlapping ROWs for the three pipelines. A total of ten temporary extra workspace sites would also be required at various locations along the construction ROW.

Separate, partially overlapping 50-foot ROWs have been requested on BLM lands for a term of 30 years for each pipeline (Figure 2.2-1). The ROW for the Black Hills pipeline would consist of 23 feet on the west side of the pipeline centerline and 27 feet on the east side. The configuration for the Red Rock pipeline ROW would be 20 feet on the west side of the pipeline centerline and 30 feet on the east side (Figure 2.2-1).

**Figure 2.2-1**

Typical Construction Right-of-Way  
on Federal Lands



No warranty is made by the Bureau of Land Management  
for use of the data for purposes not intended by the BLM

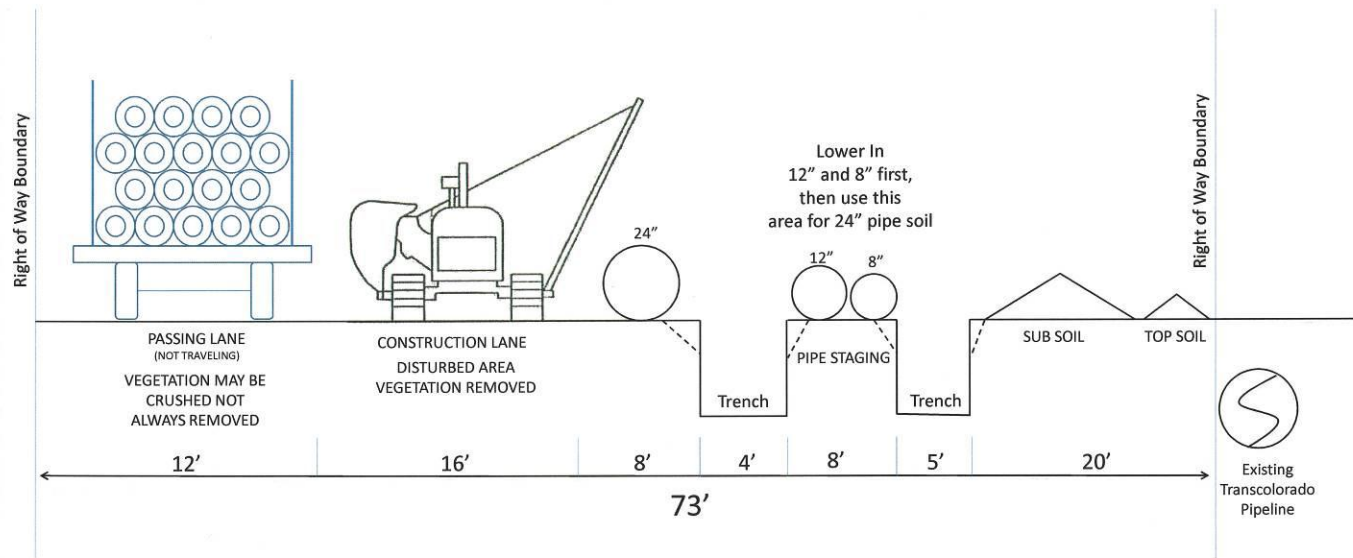


Figure 2.2-2

TYPICAL PIPELINE RIGHT-OF-WAY CROSS SECTION

The irregularity of these two ROWs results from the location of the TransColorado pipeline to the west (Figure 2.2-1). The 50-foot ROW for the Bluestone pipeline would be configured with 10 feet on the west side of the pipeline centerline and 40 feet on the east side to minimize overlap of the ROW with the Black Hills and Red Rock pipelines (Figure 2.2-1). This configuration is to allow sufficient space for maintenance activities (excavation, spoil storage, etc.) and protection of the other pipelines. Each company would operate and maintain its respective pipeline and ROW.

The 10 temporary extra workspace sites would include three on BLM land, five on private lands, and two on both BLM and private land. Temporary extra workspace sites are generally required at intersections, road crossings, stream crossings, and rugged terrain. Areas disturbed would be reclaimed following construction as required by the ROW stipulations. Table 2-2 provides the acres for each project component on federal and private lands.

**Table 2.2-2**  
**Estimated Disturbance Required for Construction of the**  
**DeBeque Pipeline Project on BLM and Private Land**

<b>Component</b>	<b>Surface Disturbance (acres)</b>		
	<b>BLM</b>	<b>Private</b>	<b>Total</b>
Construction ROW <sup>1</sup>	2.82 <sup>2</sup>	27.43	30.25
Temporary Extra Workspace Sites	0.42	5.67	6.09
<b>Total</b>	<b>3.24</b>	<b>33.10</b>	<b>36.34</b>
<sup>1</sup> Both the construction ROW and the combined ROWs on BLM land total 73 feet.			
<sup>2</sup> Represents the composite width with overlap and not the sum of individual widths of the three ROWs.			

Construction of the water storage tanks at the HDU-CF#2 pad would require approximately 1.3 acres of surface disturbance. Because the surface disturbance for HDU-CF#2 was included in the May 2013 Black Hills DeBeque Exploratory Proposal EA (DOI-BLM-CO-130-2012-0021-EA), it is not reanalyzed in this EA. Construction of the DeBeque Pumping Station, proceeding separately from this project on land owned by Red Rock, will require approximately 25.34 acres. This area is referenced in portions of the EA in relation to specific resources but is not an action to be authorized by this EA.

### 2.2.3 Aboveground Facilities and Markers

Black Hills proposes to construct the DeBeque Pumping Station in the SW¼ of Section 29, T. 8 S., R. 97 W. on private lands (25.34 acres of surface disturbance). The purpose of the facility is for water storage and pumping.

The Black Hills water pipeline and the Red Rock gas gathering pipeline would terminate at the HDU-CF#2, where the water storage tanks would be constructed within existing disturbance on private lands.

Pipeline markers would be placed along the alignment in accordance with safety requirements. No other aboveground appurtenances would occur on BLM lands.

### 2.2.4 Schedule

Project construction is proposed between as soon as practicable following project approval and issuance of a ROW grant in summer 2014. Construction is anticipated to last approximately 5 months (1 to 2 months on BLM lands). Depending on project the timing of initiation and subject to

constraints by the private landowner, some portion of the project is expected to be completed in 2015.

### 2.2.5 Workforce

Construction on BLM lands would be expected to require a peak of 80 workers. Workers would include Red Rock employees, contractor employees, construction inspection staff, and environmental inspection staff. While final staffing plans are not yet complete, no additional staffing is expected to be needed to maintain the facilities after construction.

### 2.2.6 Access and Traffic

Existing public roads would be used to access the construction ROW (Table 2.2-3). Access to southern sections of the ROW would be from Second, Third, and Fourth streets, and Stewart and Minter avenues in the Town of De Beque, and Mesa County 44 Road and Mesa County V.2 Road (Winter Flats Road). Access to northern sections of the construction ROW would be from Mesa County 45 Road (Roan Creek Road) and Mesa County X.5 Road.

**Table 2.2-3**  
**Access Routes for the DeBeque Pipeline Project**

<b>Road Name</b>	<b>Surface Type</b>	<b>Maintenance Responsible Party</b>
Interstate 70	Paved	CDOT
Mesa County 44 Road	Paved	Mesa County
Mesa County 45 Road (Roan Creek Road)	Paved	Mesa County
Mesa County V.2 Road (Winter Flats Road)	Gravel	Mesa County
Mesa County X.5 Road	Gravel	Mesa County
Second Street	Paved	Town of De Beque
Third Street	Paved	Town of DeBeque
Fourth Street	Paved	Town of DeBeque
Minter Avenue	Paved	Town of DeBeque
Stewart Avenue	Paved	Town of DeBeque

As shown in Table 2.2-3, access roads would be maintained by the Colorado Department of Transportation (CDOT), Mesa County, and the Town of De Beque. During construction, paved roads are not likely to require improvement or maintenance; gravel roads are not likely to require improvement but may require dust control. Road dust would be suppressed by spraying water on unpaved roads on an as-needed basis as determined by Red Rock or the BLM AO. In addition, workers would follow posted speed limits and comply with requirements of the Mesa County Public Works Department, Road and Bridge Division, as well as provisions of the Town of De Beque municipal code concerning the use and maintenance of town streets.

Traffic associated with pipeline construction would include vans transporting workers to and from worksites along the construction ROW, trucks hauling pipe to the ROW, water trucks (for dust control), and miscellaneous equipment supply and supervisor vehicles. To limit project-related traffic on county roads and town streets, pipeline workers would meet at the DeBeque Pumping Station and be transported to the construction ROW in vans. At the peak of construction, up to ten 8-passenger worker vans per day would leave the collection point between 7:00 am and 8:00 am and return between 5:30 pm and 6:30 pm.

Approximately 2 weeks after project initiation, pipe would be delivered to the construction ROW from the DeBeque Pumping Station, which may be used as a pipe storage yard. Pipe delivery traffic would include approximately 72 trucks over a 2-week period.

Precipitation during the construction period would determine the amount of water applied to the construction ROW and unpaved access roads for dust abatement, but it is estimated at 945,000 gallons (2.9 acre-feet). Water for dust control would be obtained from Latham Ponds (Map 1.2-2) and hauled in trucks to nearby roads and points along the construction ROW.

## **2.2.6 Site-Specific Resource Surveys**

### Cultural Surveys

A Class III (intensive) cultural resources inventory was conducted in the fall of 2013 by Grand River Institute (GRI) under BLM Antiquities Permit No. C-52775 (Conner and Darnell 2013). The inventory consisted of a 36.2-acre block located on private lands owned by Red Rock and 1.7 acres of BLM land; and 2,425 feet of linear pipeline route located on private lands (3.2 acres) and 8.2 acres of BLM land. The survey report was provided to the GJFO on November 21 2013.

### Biological Surveys

On all BLM land and on private lands where survey permission was granted, WestWater Engineering conducted surveys and/or identified potential habitat in July, September, October, and November 2013 for the following biological resources within the project area: 1) federally listed and BLM-sensitive botanical species; 2) nesting raptors; 3) BLM-sensitive animal species; 4) Birds of Conservation Concern (BCC); 5) noxious and invasive weed species; and 6) potential Waters of the U.S., including wetlands.

Surveys for suitable habitat and occurrences of BLM-sensitive and federally listed plant species, with the exception of DeBeque phacelia, were surveyed within a 100-meter buffer of the proposed construction ROW, temporary extra workspace sites, and proposed facilities. Survey transect widths varied depending on habitat suitability and conditions. Surveys for potential DeBeque phacelia habitat and/or plants were conducted in exposed gray, tan, reddish, or chocolate-brown clay soils typically associated with Shire and Atwell Gulch members of the Wasatch Formation within 200 meters of the proposed construction ROW, temporary extra workspace sites, and proposed facilities.

Visual searches for raptors were conducted using binoculars and/or spotting scopes within 0.25 mile and 0.5 mile of project features within woodland and cliff habitat, respectively. Surveys for State-listed noxious weeds were conducted within 30 meters of project features. Potential jurisdictional Waters of the U.S. were recorded when encountered along proposed disturbance. During all surveys, BLM-sensitive wildlife species and/or their sign were documented. Surveys were conducted according to current GJFO protocols. See the Biological Survey Report (WWE 2013) for additional details.

## **2.2.7 Construction Techniques**

### Civil Survey

Prior to construction, civil surveys would be performed to identify the centerline of the pipelines and the boundaries of both sides of the approved construction ROW. Flagged or painted lath would be set at intervals required to maintain line of sight, along the proposed centerlines and along the edges of the construction ROW. All four corners of each temporary extra workspace site would be marked

by a flagged or painted lath. Red Rock's construction inspectors would be responsible for verifying that the limits of authorized construction work areas are staked prior to construction.

#### Clearing, Grading, and Topsoiling

Vegetation would be cleared and the construction areas graded to provide for safe and efficient operation of construction equipment and vehicles and to provide space for the storage of subsoil and topsoil. Construction activity and ground disturbance would be limited to approved, staked areas.

Trees would be cut with a chain saw and/or mechanical shears, and brush would generally be cut with a hydro-ax or similar equipment. Trees and brush would be cut as close to the ground as possible. Plant material would typically be chipped or shredded and incorporated into the topsoil. Stumps that are not shredded or chipped and incorporated into the topsoil would be removed and disposed of at an approved disposal facility.

Topsoil would be salvaged where required by the BLM and private landowners and protected along most of the route to facilitate revegetation of the disturbed areas after construction is complete. All available topsoil up to a depth of 6 inches would be removed from the trenchline and working side of the construction ROW. Topsoil would be stockpiled separate from subsoil and would not be used to pad the trench or construct trench breakers. Dry drainages or washes that cross the construction ROW would not be blocked with topsoil or subsoil piles. Topsoil and subsoil would be placed on the banks of the drainages. Gaps would be left periodically in the topsoil and the subsoil windrowed to avoid ponding and excess diversion of natural runoff during storm events.

#### Trenching and Blasting

Trenching would be completed using excavators or trackhoes. A trench approximately 48 inches wide and 5 feet deep would be excavated for use installing the Black Hills produced water pipeline and Red Rock gas gathering pipeline. The pipelines would be placed approximately 12 inches apart in the trench. After installation of the water and gas pipelines, a separate trench would be dug for installation of the Bluestone raw water pipeline. Trenching would be to one side of the construction ROW to allow placement of spoil opposite the wider working side.

Blasting is not expected on BLM lands. Where rock formations are encountered and blasting is necessary on private lands, all necessary authorizations would be obtained and all safety precautions observed. All blasting work would be conducted in compliance with federal, state, and local laws, rules, and regulations.

Access would be provided for landowners and grazing permittees to move vehicles, equipment, and livestock across the trench where necessary. Livestock operators would be contacted and provided adequate crossing facilities as needed to ensure livestock are not prevented from reaching water.

Wildlife and livestock trails would be kept open and passable by adding soft plugs (areas where the trench is excavated and replaced with minimal compaction) during the construction phase. Soft plugs with ramps on either side would be left at all well-defined livestock and wildlife trails to allow access across the trench and provide a means of escape for livestock and wildlife that may fall into the trench.

#### Stringing and Welding

The joints of pipe would be strung along the trench and welded together. Where necessary, pipe would be bent to accommodate horizontal and vertical changes in direction. Pipe joints would be

lined up end-to-end and clamped into position and welded in accordance with regulations and standards currently required for natural gas pipelines or water lines, as applicable. All welds would be visually inspected by a qualified inspector. Non-destructive radiographic inspection methods would be conducted in accordance with current requirements. A specialized contractor would be employed to perform this work. Any defects would be repaired or cut out as required under the specified regulations and standards.

To prevent corrosion, the pipe would be externally treated with fusion bonded epoxy coating prior to delivery. A cathodic protection rectifier would be used to prevent corrosion of the pipe interior. After welding, field joints would be coated with a tape wrap, shrinkable sleeve wrap, or field-applied fusion bond epoxy. Before the pipe is lowered into the trench, the pipeline coating would be visually inspected and tested with an electronic detector, and any faults or scratches would be repaired.

#### Lowering-in and Padding

Before a pipe section is lowered into the trench, an inspection would be conducted to verify that the pipe is properly fitted, minimum cover is provided, and the trench bottom is free of rocks and other debris that could damage the external pipe coating. Dewatering may be necessary where water has accumulated in the trench. The pipe sections would be simultaneously lifted in position over the trench and lowered in place. Sifted soil fines from the excavated subsoils would provide rock-free pipeline padding and bedding. Sandbags may be used to pad the bottom of the trench instead of, or in combination with, padding with soil fines. In rocky areas, padding material or a rock shield would be used to protect the pipe. No topsoil would be used to pad the pipe.

#### Backfilling

Backfilling would begin after a section of pipe has been successfully placed in the trench. Backfill would be conducted using a bulldozer or other suitable equipment. Backfilling the trench would generally use the subsoil previously excavated from the trench, except in rocky areas where imported select fill material may be needed. Backfill would be graded and compacted, where necessary for ground stability, by tamping or walking with a wheeled or tracked vehicle. Compaction would be performed to the extent that there are no voids in the trench. Any excavated materials or materials unfit for backfill would either be utilized elsewhere or properly disposed of in conformance with applicable laws or regulations.

#### Hydrostatic Testing

Water used during hydrostatic test water would be obtained from a clean temporary freshwater storage tank to minimize potential contamination of water discharged at the surface following testing. The test would be pumped to the temporary freshwater storage tank at the Kobe Lite Pump Station and then pumped into each pipeline. It is estimated that approximately 490,000 gallons (1.5 acre-feet) of water would be required for testing.

#### Strength Testing

The pipelines would be tested in accordance with established Best Management Practices (BMPs), applicable regulations, and industry standards. The Maximum Allowable Operating Pressure (MAOP) for each pipeline measured as pounds per square inch (psi) is listed in Table 2.2-4, which also provides the diameter, material, and wall thickness for each of the pipelines.

**Table 2.2-4  
Pipeline Details**

<i><b>Pipeline</b></i>	<i><b>Purpose</b></i>	<i><b>Diameter</b></i>	<i><b>Material</b></i>	<i><b>Wall Thickness (inches)</b></i>	<i><b>MAOP (psi)</b></i>
Black Hills	Produced Water Delivery	8-inch	Steel	0.219	1,000
Red Rock	Gas Gathering	12-inch	Steel	0.250	720
Bluestone	Raw Water Delivery	24-inch	PVC	N/A	200

Prior to filling the pipeline for a hydrostatic or pneumatic test, each section of the pipeline would be cleaned by passing reinforced poly pigs through the interior of the line. Incremental segments of the pipeline would then be filled with water or nitrogen, pressurized, and held for the duration of the test. The length of each segment tested would depend on topography. It is anticipated that approximately 490,000 gallons (1.5 acre-feet) of water would be needed to test the Bluestone pipeline. The same water would then be used to test the Red Rock and Black Hills pipelines.

#### Cleanup and Restoration

Cleanup and restoration would occur at the time of installation. Cleanup of the surface along the construction ROW and any temporary extra workspace sites would be performed by removing any construction debris and by performing final grading to the finished contour(s). Erosion control measures would be installed and seeding would be performed in accordance with private landowner and BLM requirements.

Drill-seeding or broadcast-seeding would be employed to ensure proper seed placement. Drill seeding is preferred and would be used wherever soil characteristics and slope allow effective operation of a rangeland seed drill. Drill seeding would be performed perpendicular to the slope. Seed would be placed in direct contact with the soil at an average depth of approximately 0.5 inch, covered with soil, and firmed to eliminate air pockets around the seeds. Broadcast seeding would be employed only in areas where drill seeding is unsafe or physically impossible. Seed would be applied uniformly over disturbed areas with manually operated cyclone-bucket spreaders, mechanical spreaders, or blowers. Broadcast application rates would be twice that of drill rates. The seed would be uniformly raked, chained, dragged, or cultipacked to incorporate seed to a sufficient seeding depth.

All irrigation ditches, cattle guards, fences, and artificial and natural livestock and wildlife water sources would be repaired to at least pre-construction conditions.

## **2.2.8 Special Construction Techniques**

### Waterbody Crossings

The Reservoir Ditch would be crossed using a dry open cut method (i.e., flume or dam and pump) or a conventional bore.

### Livestock Barrier and Other Livestock Issues

Compensation or interim measures would be provided for any critical facilities (such as watering sites) that are disrupted during the construction or restoration process through prior agreements with grazing permittees or landowners. Temporary fencing would be installed as required by pre-construction agreements with landowners to prevent livestock entry into the construction ROW and

temporary extra workspace sites. Livestock crossovers (trench plugs) would be utilized, with ramps on either side of the open trench, at maximum 1-mile intervals and at well-defined livestock and wildlife trails to facilitate passage of livestock across the construction ROW and to prevent livestock from becoming trapped in the trench.

## **2.2.9 Monitoring and Maintenance**

The pipelines would be monitored annually for leak detection. Following successful restoration/revegetation, maintenance of the ROWs is not expected to be necessary based on the existing vegetation. Larger shrubs and small trees would be brush-hogged or hydro-axed where necessary. Access to the ROWs would be from existing roads.

## **2.2.10 Abandonment**

Properly maintained, the pipelines would be expected to operate for 50 or more years. No plans for abandonment of these facilities have been identified. If abandonment of any facilities is proposed in the future, the abandonment would be subject to approvals by state and/or federal agencies with appropriate jurisdiction. Abandonment would be implemented in accordance with then-applicable permits, approvals, codes, and regulations. At the end of the pipelines' useful life, the necessary authorizations would be obtained from the BLM AO to abandon the facilities.

## **2.2.11 Project Design Features**

The following design features would be implemented as part of the Proposed Action on federal lands to protect the specific resources listed below:

### Air Quality

- During construction, fugitive dust from road surfaces would be suppressed by spraying water on unpaved roads on an as-needed basis as determined by Red Rock or the BLM.
- Workers would comply with posted speed limits.

### Soils

- Topsoil would be salvaged where required by the BLM and private landowners and protected along most of the route to facilitate revegetation of the disturbed areas after construction is complete.
- All available topsoil up to a depth of 6 inches would be removed from the trenchline and working side of the construction ROW.
- Topsoil would be stockpiled separate from subsoil and would not be used to pad the trench or construct trench breakers.
- Gaps would be left periodically in the topsoil and subsoil windrowed to avoid ponding and excess diversion of natural runoff during storm events.
- Erosion control measures would be installed in accordance with the Stormwater Management Plan (SWMP).

### Water Resources

- Flowing streams/ditches would be crossed "in the dry" using a flume or dam and pump method. Alternatively, the pipelines would be bored beneath the ditches (Reservoir Ditch only).

- Dry drainages or washes that cross the construction ROW would not be blocked with topsoil or subsoil piles.
- Topsoil and subsoil would be placed on the banks of the drainages.

#### Invasive Species and Noxious Weeds

- Weeds would be treated prior to ground disturbance.

#### Vegetation

- Cleanup and restoration would occur at the time of pipeline installation.
- Seeding would be in accordance with private landowner and BLM requirements.
- Drill- or broadcast-seeding would be employed to ensure proper seed placement. Broadcast seeding would be employed only in areas where drill seeding is unsafe or physically impossible.

#### Wetlands and Riparian Zones

- Herbicides would not be applied within 100 feet of surface waters, wetlands, or floodplains.

#### Threatened and endangered Species

- No construction would occur within 200 meters of DeBeque phacelia suitable habitat from April through June.
- No construction would occur within 100 meters of Colorado hookless cactus plants between April and late May.
- Herbicides would not be applied, unless recommended by the BLM, within 100 meters of Colorado hookless cactus and other BLM sensitive plant species and 200 meters of DeBeque phacelia suitable habitat and/or plants.

#### Migratory Birds

- Clearing of vegetation would occur prior to May 15 or after July 15 to avoid destruction of nests, eggs, or nestlings of migratory birds unless a survey by a qualified biologist during the nesting season indicates that no active nests are present within the area to be cleared. For BCC species, the buffer width would be 100 feet.

#### Wildlife

- No construction would occur within mule deer winter range, severe winter range, or winter concentration areas between January 1 and March 1. These habitat designations include the entirety of the project area.

#### Transportation and Access

- The proposed pipelines would be placed adjacent to existing pipelines, and existing roads would be used for access to minimize surface disturbance.
- Passenger vans would be used to transport workers to the construction ROW.
- Water used during hydrostatic testing would be pumped into each pipeline from a temporary frac tank, avoiding the need for additional truck traffic.

## **2.3 No ACTION ALTERNATIVE**

In accordance with the NEPA and CEQ regulations, which require that a No Action Alternative be presented in all environmental analyses in order to serve as a “base line” or “benchmark” from which to compare all proposed “action” alternatives, a No Action Alternative is analyzed in this EA. Under the No Action Alternative, the construction, operation, maintenance, and abandonment of the proposed pipelines and facilities would not occur on BLM land. Oil and gas production would continue within the project area by Black Hills and other operators.

## **2.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL**

If an alternative is considered during the environmental analysis process, but the agency decides not to analyze the alternative in detail, the agency must identify such alternatives and briefly explain why they were eliminated from detailed analysis (40 CFR 1502.14).

Several alternate routes were investigated during project planning but were eliminated from detailed analysis. These were as described below:

- Potential routes to the west were dropped from consideration because construction would be in the side of the South Shale Ridge, where steeper slopes would require larger cuts and fills for construction and greater visual impacts. In addition, a western alternative would require more difficult construction techniques and construction of new roads.
- A potential route to the east was dropped from consideration because of its proximity to Reservoir Ditch and/or Roan Creek. In addition, the major private landowner (Chevron) dictated that the new pipelines generally follow the existing TransColorado corridor for portions on private land.

The second potential alignment described above would have avoided the small amount of BLM land to be crossed by the proposed alignment but, in addition to opposition by the private landowner, would have represented greater environmental impacts and constructions difficulties due to multiple crossings of drainages.

## CHAPTER 3. AFFECTED ENVIRONMENT AND IMPACTS

### 3.1 INTRODUCTION

This section describes the human and natural environmental resources potentially affected by the Proposed Action and presents comparative analyses of the direct, indirect, and cumulative effects resulting from its implementation (Table 3.1-1). This includes information compiled in the Grand Junction Resource Area RMP (BLM 1987). Resources and resources uses not listed were not considered to be subject to potentially significant adverse impacts based on the location, scale, and design of the Proposed Action and existing environmental and resource conditions within or near the area of surface disturbance or intensive human activity.

**Table 3.1-1  
Potentially Affected Resources**

<b>Resources</b>	<b>Not Present</b>	<b>Not Affected</b>	<b>Potentially Affected</b>
<b>PHYSICAL RESOURCES</b>			
Air Quality and Climate			X
Geological Resources		X	
Mineral Resources		X	
Soils			X
Water (Surface Water, Groundwater, and Floodplains)			X
<b>BIOLOGICAL RESOURCES</b>			
Invasive Non-native Species			X
Vegetation			X
Wetlands and Riparian Zones			X
Listed, Proposed, or Candidate Threatened or Endangered Species			X
BLM sensitive species			X
Migratory Birds			X
Wildlife			X
<b>HERITAGE RESOURCES AND HUMAN ENVIRONMENT</b>			
Cultural or Historical			X
Paleontological Resources			X
Tribal and Native American Religious Concerns			X
Visual Resources			X
Socioeconomic		X	
Environmental Justice		X	
Transportation and Access			X
Wastes, Hazardous or Solid			X
<b>LAND RESOURCES</b>			
Prime or Unique Farmlands			X
Recreation		X	
Special Designations (ACEC, SMAs, etc.)	X		

<b>Resources</b>	<b>Not Present</b>	<b>Not Affected</b>	<b>Potentially Affected</b>
Wild and Scenic Rivers	X		
Wilderness	X		
Range Management	X		
Wild Horse and Burros	X		
Land Tenure, ROWs, Other Uses		X	

For resources identified in Table 3.1-1 as either not present or not affected by the Proposed Alternative, the bases for those determinations are provided below.

- Geological/Mineral Resources – shallow depth of pipeline trenching
- Land Tenure, ROWs, Other Uses – alignment selected to avoid interference with use of existing pipeline ROW
- Socioeconomic/Environmental Justice – short duration and limited scale of project and location in a sparsely populated area
- Recreation – no designated recreation management areas present
- Special Designations – no special designations present except the Pyramid Rock ACEC, which would not be directly affected
- Wild and Scenic Rivers – no designated Wild and Scenic Rivers in the project vicinity
- Wilderness – no direct impacts to Wilderness Areas or Wilderness Study Areas (WSAs).
- Range Management – no impacts to grazing allotments on BLM lands
- Wild Horse and Burros – none present in the project vicinity

For resources identified in Table 3.1-1 as potentially affected, adverse impacts described in this chapter are considered important (i.e., warranting analysis) if they would result from, or relate to, implementation of any of the alternatives. These impacts are defined as follows:

- Direct – caused by the action and that occur at the same time and in the same general location as the action
- Indirect – occur at a different time or in a different location than the action.
- Short-term – occur during or after the action and might continue for up to 2 years
- Long-term – occur or extend beyond the first 2 years

Environmental impact analysis is based on available data and literature from state and federal agencies, peer-review scientific literature, and resource studies conducted in the project area. For each resource, where applicable, protective design features and mitigation measures were identified. These would be treated as conditions of approval (COAs) applied under BLM's regulatory authority and attached to the ROW Grants as stipulations (see Appendix A).

## 3.2 PHYSICAL RESOURCES

### 3.2.1 Air Quality and Climate

#### Current Conditions

Regional air quality is influenced by a combination of factors including climate, meteorology, the magnitude and spatial distribution of local and regional air pollution sources, and the chemical properties of emitted pollutants. Within the lower atmosphere, regional and local scale air masses interact with regional topography to influence atmospheric dispersion and transport of pollutants.

The project area is located in a semiarid (dry and cold), mid-continental climate regime. The area is typified by dry, sunny days, clear nights, and large daily temperature changes. Mean annual precipitation is approximately 16 inches, with one month (June) averaging less than 1 inch and all other months averaging between 1.2 and 1.6 inches. The frequency and strength of winds affect the transport and dispersion of air pollutants. Nearly 75% of wind speeds are less than 7.5 miles per hour (mph). Wind speeds greater than 12 mph have a frequency of around 5%, within less than 1% faster than 19 mph. The dominant wind directions are from the northeast and, secondarily, from the southwest—i.e., along the general alignment of the Colorado River Valley.

Colorado Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) are health-based criteria for the maximum acceptable concentrations of air pollutants in areas of public use. Air pollutants measured in the region for which ambient air quality standards exist include carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter less than 10 microns (μ) in diameter (PM<sub>10</sub>), and particulate matter less than 2.5 μ in diameter (PM<sub>2.5</sub>). Background data from the nearest air monitoring stations are presented in Table 3.2-1.

**Table 3.2-1**  
**Background Ambient Air Quality Concentrations in the Project Vicinity**  
**in Comparison to National and Colorado Air Quality Standards**

<i><b>Pollutant</b></i>	<i><b>Averaging Period</b></i>	<i><b>Measured Background Concentration μg/m<sup>3</sup></b></i>	<i><b>NAAQS μg/m<sup>3</sup></b></i>	<i><b>CAAQS μg/m<sup>3</sup></b></i>
CO <sup>1</sup>	1-hour	1,150	40,000	40,000
	8-hour	1,150	10,000	10,000
NO <sub>2</sub> <sup>2</sup>	1-hour	20.7	188	188
	Annual	1.9	100	100
PM <sub>10</sub> <sup>3</sup>	24-hour	27	150	150
PM <sub>2.5</sub> <sup>4</sup>	24-hour	14	35	35
	Annual	3	12	12
Ozone <sup>5</sup>	8-hour	141.1	147	147
SO <sub>2</sub> <sup>6</sup>	1-hour	2.6	196	196
	3-hour	2.6	1,300	700

<sup>1</sup> Second maximum concentrations. Williams Willow Creek, 2012 (CDPHE 2013a)  
<sup>2</sup> Annual mean, 1-hour first maximum. Williams Willow Creek, 2012 (CDPHE 2013a)  
<sup>3</sup> Annual mean, 24-hour second maximum. Greasewood, 2009-2010 (CDPHE 2013a)  
<sup>4</sup> Annual mean, 24-hour 98<sup>th</sup> percentile. Williams Willow Creek, 2012 (CDPHE 2013a)  
<sup>5</sup> 8-Hour Fourth Maximum. Greasewood, 2009-2010 (CDPHE 2013a)  
<sup>6</sup> 1-hour first maximum and 3-hour second maximum. Williams Willow Creek, 2012 (CDPHE 2013a).

The project area lies within Mesa County and adjacent to Garfield County, which have been described as attainment areas under CAAQS and NAAQS. An attainment area is an area where ambient air pollution quantities are below (i.e., better than) NAAQS standards. Regional background values are well below established standards, and all areas within the cumulative study area are designated as attainment for all criteria pollutants. Federal air quality regulations are enforced in Colorado by the Colorado Department of Public Health and Environment (CDPHE) under its delegated authority from the U.S. Environmental Protection Agency (USEPA).

To protect visibility in sensitive airsheds, Federal air quality regulations adopted and enforced by CDPHE through the Clean Air Act (CAA) Prevention of Significant Deterioration (PSD) Program limit incremental emissions increases of air pollutants from certain sources to specific levels defined by the classification of air quality in an area. Incremental increases in PSD Class I areas are strictly limited, while increases allowed in Class II areas are less strict.

The project area lies within 200 kilometers (km) of eleven Prevention of Significant Deterioration (PSD) Class I areas and two sensitive Class II areas. Class I areas include the Black Canyon of the Gunnison Wilderness (72 km), Flat Tops Wilderness (82 km), Maroon Bells – Snowmass Wilderness (89 km), West Elk Wilderness (89 km), Arches National Park (123 km), Uncompahgre Wilderness (141 km), Eagles Nest Wilderness (157 km), Canyonlands National Park (165 km), La Garita Wilderness (172 km), Weminuche Wilderness (182 km), and Mount Zirkel Wilderness (182 km). Federal Class II areas within 200 km of the project area that are considered sensitive areas are Colorado National Monument (48 km) and Dinosaur National Monument (120 km).

No ambient air quality standards for greenhouse gases (GHGs) have yet been established, nor are emissions limits currently place on GHGs that would apply to sources under the Proposed Action.

### Environmental Consequences

#### *Proposed Action*

Construction of the pipeline and pumping station would result in intermittent and short-term air pollutant emissions from the operation of diesel-fired heavy construction equipment. Specifically, fugitive dust emissions (PM<sub>10</sub> and PM<sub>2.5</sub>) and diesel combustion emissions (NO<sub>x</sub>, SO<sub>2</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and volatile organic compounds (VOCs) would result from construction and from travel on unpaved roads. Pipeline operation would require 12 light vehicle field visits per year, which would produce negligible quantities of annual pollutant emissions over the life of the project.

Daily and total annual emissions associated with construction of the Proposed Action shown in Table 3.2-2 reflect activities occurring along the entire pipeline route over the 5-month pipeline construction period and during the concurrent 60-day pumping station construction period.

These emissions would not be expected to cause or substantially contribute to a violation of any applicable ambient air quality standard at a single location, and the Proposed Action would be expected to comply with all applicable PSD increments. The transient, assembly-line nature of construction activities would minimize annual impacts. The contribution from project source emissions to ambient air concentrations, including impacts to regional haze and atmospheric deposition at PSD Class I areas would also be negligible.

Protective project design measures described in the POD (Black Hills et al. 2013) include applying water to control dust on access roads and the construction ROW and carpooling of workers to and from the work site would be utilized to minimize traffic. These measures would minimize potential fugitive dust emissions. Other measures would include adhering to posted speed limits of 15 mph

along the construction ROW and 30 mph or less along access roads, where there is no posted speed limit. Clearing of vegetation and soil would be limited along the construction ROW when winds are in excess of 35 mph.

**Table 3.2-2**  
**Approximate Project Daily (tons/day) and Total Annual (tons/year) Air Pollutant Emissions**

<b>Activity</b>		<b><i>PM</i><sub>10</sub></b>	<b><i>PM</i><sub>2.5</sub></b>	<b><i>NO</i><sub>x</sub></b>	<b><i>CO</i></b>	<b><i>SO</i><sub>2</sub></b>	<b><i>VOCs</i></b>
Pipeline Construction	Daily	0.03	0.005	0.05	0.04	0.001	0.004
	Total	4.2	0.8	7.8	5.8	0.2	0.6
Pumping Station Construction	Daily	0.01	0.002	0.02	0.02	0.002	0.006
	Total	0.6	0.1	0.8	0.6	0.02	0.06
Total Emissions	Daily	0.04	0.007	0.07	0.64	0.02	0.06
	Total	4.8	0.9	8.5	6.4	0.2	0.7

Protective and mitigation measures included in Appendices A and B would be attached as stipulations to the ROW Grants. Based on the limited extent and duration of the project and the mitigation measures attached as stipulations to the ROW Grants, the Proposed Action would have minor, short-term impacts on air quality within the project vicinity. No detectable impacts to more distant receptors, including Class I and sensitive Class II areas, are anticipated.

## CLIMATE CHANGE

Greenhouse gas emissions for construction under the Proposed Action are calculated to be 31,338 metric tons (0.031 million metric tons). GHG emissions in the State of Colorado total 127 million metric tons (CDPHE 2013b) annually. Therefore, project emissions would comprise approximately 0.024 percent of total State GHG emissions. No effects to climate would be expected from construction of the Proposed Action.

### *No Action Alternative*

Under the No Action Alternative, impacts to air quality or climate associated with the Proposed Action would not occur because the Proposed Action would not be built. Ongoing activities in the project area would continue.

## **3.2.2 Soils (includes a finding on Standard 1)**

### Current Conditions

Soils within the project area were identified and characterized using the Natural Resource Conservation Service (NRCS) soil survey of Douglas-Plateau Area, Colorado, Parts of Garfield and Mesa Counties, Colorado (NRCS 2003). Information in this survey was supplemented with the NRCS Soil Web Survey SSURGO data, which include both spatial and tabular data (NRCS 2013).

Soils in the Roan Creek Valley have formed primarily on alluvial valleys and floodplains, as well as alluvial fans, toe slopes, and structural benches. The elevation of the project area ranges from 4,950 feet to 5,150 feet. Soil mapping units within the project area are described below, grouped by the landform position where they typically occur. Table 3.2-3 provides a listing of these soils with their dominant limiting characteristics.

### Public Land Health Standard 1 (Upland Soils)

In a Land Health Assessment for the DeBeque/Roan Creek landscape area, evaluated in 2004 and 2006 (BLM 2009b), the BLM determined that most of the assessed area, including the project area, met Standard 1. Problems, where documented, were related to lack of vegetative cover on the soil surface and resulting erosion.

### Environmental Consequences

#### *Proposed Action*

The soil series data (i.e., soil mapping unit) from the county soil survey reports and SSURGO Geographic Databases were utilized to conduct an analysis of the potential construction and operation impacts to soils resulting from the Proposed Action. To perform this analysis, a database was developed incorporating the soil series characteristics listed in Table 3.2-3. The Table also presents a summary of soil disturbance for each mapping unit.

Construction activities would have the potential to adversely affect natural soil characteristics and, consequently, soil productivity and restoration potential during clearing and grading, trenching, and clean-up activities. As shown in Table 3.2-3, a combined 2.57 acres (of 3.23 acres total) on BLM land and 21.52 acres on BLM land (of 33.11 acres total) are on soils rated as having reclamation sensitivity due to one or more characteristics. Reclamation of soils with high reclamation sensitivity typically requires adaptive seed mixtures and implementation of appropriate revegetation practices such as scarification, seeding techniques, mulching, and regular monitoring to improve restoration success. Soils that are difficult to revegetate are also generally more susceptible to noxious weed infestations.

The soils with reclamation sensitivity are also rated as subject to severe or very severe water erosion. None of the area soils is rated as having severe or very severe wind erosion potential. No hydric (wetland) soils would be affected as a result of the Proposed Action. Three mapping units are identified as prime farmland if irrigated. However, no irrigation currently occurs or is anticipated.

Protective design features and mitigation measures to minimize soil loss and erosion and enhance reclamation success are presented in Appendices A and B. These would be attached as stipulations to the ROW Grants. Based on the limited areal extent of the project area, its location adjacent to an existing pipeline corridor, and the mitigation measures to be attached as stipulations to the ROW Grants, the Proposed Action would have relatively minor, mostly short-term impacts from soil erosion and loss and decreased soil productivity.

#### *No Action Alternative*

Under the No Action Alternative, impacts to soils associated with the Proposed Action would not occur because the Proposed Action would not be built. Ongoing activities would continue.

### Finding on the Public Land Health Standard 1 (Upland Soils)

Land Health Assessments for four different landscape areas within the GJFO RMP in 2004 and 2006, including the DeBeque/Roan Creek landscape area (BLM 2009b), determined that most of the assessed area meets this standard. Where there were problems, they were due to lack of vegetative cover on the soil surface and actual erosion from gully erosion. With implementation of the proposed mitigation measures identified within this EA and with management of noxious weeds, Proposed Action would have minimal impact on current conditions related to Standard 1.

**Table 3.2-3**  
**Soil Types, Acres of Project Disturbance, and Limiting Soil Characteristics**

Map Unit Number	Mapping Unit Name/Slope	Total Acres to be Disturbed (acres)		Water Erosion	Wind Erosion	Steep Slopes	Large Stones	Restrictive Layer within 60 inches	Reclamation Sensitivity	Saline/Sodic	Compaction	Hydric Soils	Prime Farmland	Flooding Hazard Frequency	Water Table
		BLM	Pvt.												
2	Badland <sup>1</sup>	0.93	0.00	Severe	Low	No	No	Yes	Yes	No	No	No	No	None	No
12	Bunkwater very fine sandy loam 1 to 8 percent slopes	0.00	0.00	Severe	Moderate	No	No	No	Yes	Yes	Yes	No	No	None	No
32	Dominguez clay loam 3 to 8 percent slopes	0.00	11.89	Severe	Moderate	No	No	No	No	No	Yes	No	Yes <sub>2</sub>	None	No
44	Happle very channery sandy loam 3 to 12 percent slopes	0.00	0.73	Severe	Low	No	Yes	No	Yes	No	No	No	No	None	No
54	Panitchen loam 1 to 6 percent slopes	0.00	0.43	Moderate	Moderate	No	No	No	No	Yes	Yes	No	Yes <sub>2</sub>	None	No
70	Uffens loam 1 to 8 percent slopes	1.64	8.90	Very Severe	Moderate	No	No	No	Yes	Yes	Yes	No	No	None	No
78	Youngston loam 1 to 6 percent slopes	0.66	11.16	Slight	Low	No	No	No	No	Yes	No	No	Yes <sub>2</sub>	None	No
Total Surface Disturbance <sup>3</sup>		3.23	33.11												
<sup>1</sup> The Proposed Action crosses this soil mapping unit in areas where slopes greater than 30 percent do not occur. <sup>2</sup> If irrigated. None of these soils is irrigated within the project area. <sup>3</sup> Does not include Kobe Pumping Station (25.34 acres).															

### **3.2.4 Water (Groundwater and Surface Water) (includes a finding on Standard 5)**

#### Current Conditions

##### **GROUNDWATER**

The Proposed Action is within the Kimball Creek-Roan Creek watershed (Hydrologic Unit HUC1401000510). Roan Creek, a perennial stream, is the principal drainage in the area and is a tributary to the Colorado River. Another drainage feature, Reservoir Ditch, a 7-foot-wide irrigation channel, traverses the project area. Reservoir Ditch is a tributary to the Colorado River. Two unnamed intermittent or ephemeral tributaries to the Colorado River are located within the boundary of the proposed DeBeque Pumping Station.

Groundwater resources in the project area are mainly in Quaternary alluvium in valleys with headwaters in the Roan Plateau. The alluvium is recharged primarily by snowmelt in the headwaters areas. Based on valley profiles, the alluvium in Roan Creek may be as thick as 100 feet. Alluvial groundwater resources used for public water supply and agricultural irrigation represent an important resource in rural areas for domestic supplies. Reported yields from area alluvial wells vary with the intended use of the well, construction design, type of sediment, and saturated thickness. Because of shallow well depths and water levels, alluvial groundwater is readily developed in rural areas for agricultural and domestic purposes. Most of the groundwater used within the Lower Colorado River basin comes from surface water sources (Topper et al. 2003).

The Colorado Division of Water Resources (DWR) identifies eight groundwater wells within 0.25 mile of the Proposed Action. Most of these are permitted as monitoring wells operated by #10 Enterprises LLC. One domestic well (Permit 279019) is located 0.25 mile west of the proposed DeBeque Pumping Station. A commercial well (Permit 292780) operated by Red Rock is located within the boundary of the proposed DeBeque Pumping Station. All wells are located more than 250 feet from the construction ROW except for one monitoring well approximately 50 feet east of the construction ROW.

##### **SURFACE WATER**

The Colorado Water Quality Control Division (WQCD) implements and enforces water quality assessments and management policies for surface waters in Colorado. Roan Creek within the project area is part of the Lower Colorado Basin, stream segment 14c - Roan Creek mainstem (CDPHE 2012a). The designated use classifications for stream segment 14c are Aquatic Life Warm 1, Recreation Class P, Water Supply, and Agriculture. The Reservoir Ditch and minor intermittent or ephemeral drainages contribute flows to Lower Colorado stream segments 13a (Colorado River – all tributaries below Parachute Creek). The assigned designated uses are Aquatic Life Warm 2, Recreation Class P, and Agriculture.

The Clean Water Act requires states to compile a list of waterbodies, known as the 303(d) list, that do not fully support their beneficial uses. The 303(d) list and 305(b) report provided by CDPHE to the USEPA identify impaired streams, i.e., those that do not meet water quality standards for the designated uses. Stream segment 14c is on the current 303(d) list for impairment due to selenium (CDPHE 2012b). However, this impairment is specific to the Dry Fork of Roan Creek, upstream from the Proposed Action. According to the current update to Colorado's 305(b) report, the leading cause of impairment in Colorado rivers is metals, specifically selenium derived from marine shales (CDPHE 2012b). Stream segment 13a is classified as a Category 2 for water quality and is not on the current 303(d) list for impairment.

## WATER RIGHTS

According to the DWR (2013b), eight water rights associated with Roan Creek and Reservoir Ditch within 0.25 mile of the Proposed Action. Most are used primarily for irrigation and augmentation. Three are associated with limited domestic and stock watering uses.

### Public Land Health Standard 5 (Water Quality)

Land Health Assessments for the DeBeque/Roan Creek landscape area were completed in 2004 (BLM 2009b). The mainstem of the Colorado River is on the State 303 (d) list of impaired waterbodies for selenium. Selenium is associated with sediment runoff in water, which is caused by erosion. Land use disturbances, such as grazing, energy development and surface-disturbing activities included in the proposed action, that occur in marine-derived shale soils increase dissolved materials in river systems as a result of increased erosion and sediment transport.

### Environmental Consequences

#### *Proposed Action*

The pipelines would parallel but be located upslope from Roan Creek and its associated floodplain for most of the alignment (Map 3.2-1). The closest approach to the 100-year floodplain would be 500 feet. Reservoir Ditch would be crossed twice by the construction ROW. Flowing streams/ditches would be crossed “in the dry” using a flume and dam-and-pump method. Reservoir Ditch may be crossed by boring beneath, avoiding impacts to the channels and adjacent wetland fringes. Alluvial groundwater flow could be impacted temporarily if trenching or boring intersects shallow groundwater. If this occurs, the trench may need to be dewatered. Trench breakers (constructed of either sand bags or polyurethane foam) would be installed to keep groundwater from being diverted down the trench.

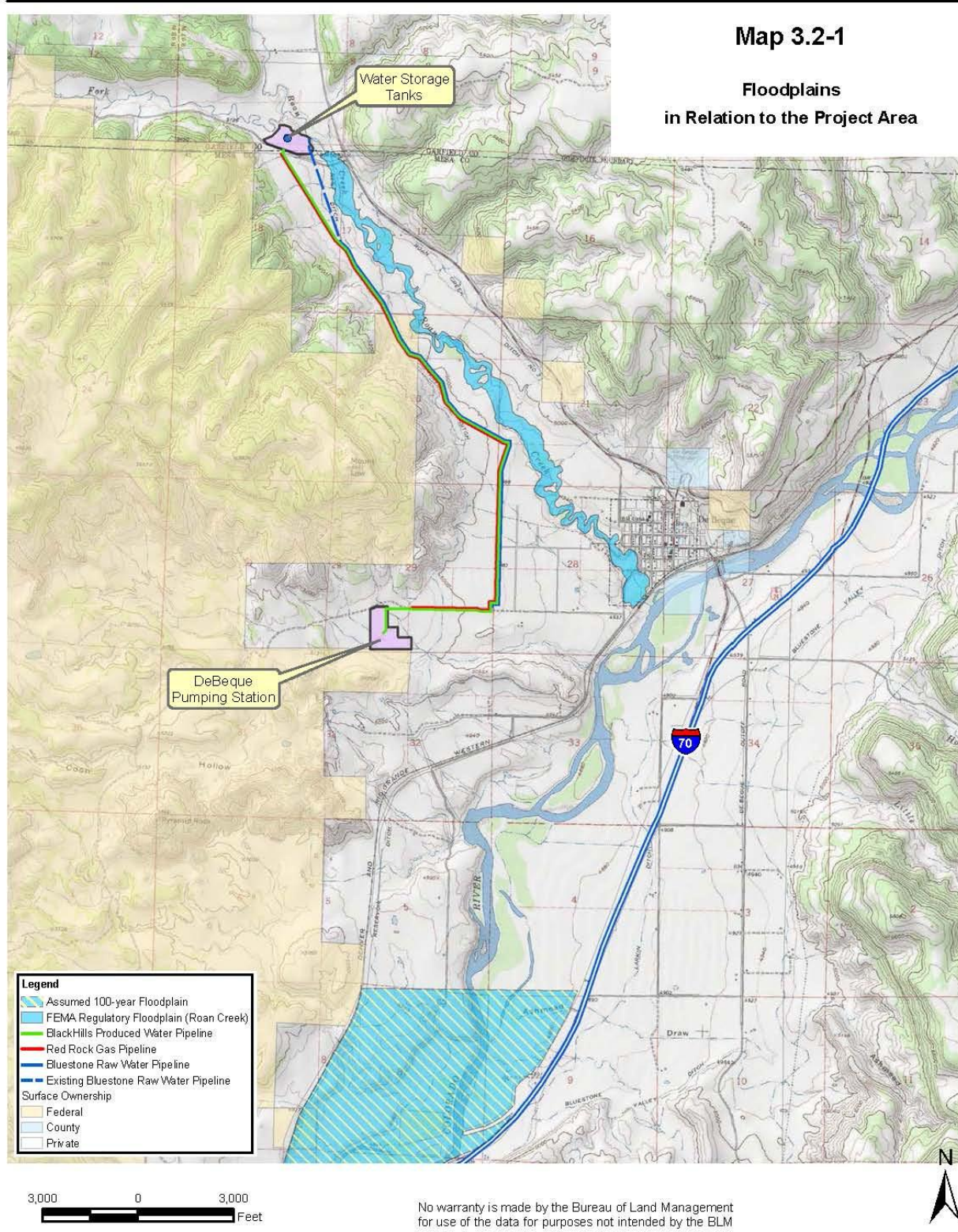
Groundwater quality could be impacted by spills of fuel during construction and by leaks or breaks in the pipeline. The measures described in the SWMP and the Spill Prevention, Control, and Countermeasures Plan (SPCCP) included with the POD (Black Hills et al. 2013) would reduce potential impacts from spills during construction.

Existing water rights would not be affected by the Proposed Action.

Protective design features and mitigation measures to minimize impacts to groundwater and surface water are presented in Appendices A and B. Based on the limited extent and depth of trenching and the mitigation measures incorporated into project design or required attached as stipulations to the ROW Grants, impacts to groundwater would be negligible and impacts to surface water minor and temporary. Potential impacts from leaks and spills are addressed in the SWMP and SPCCP.

#### *No Action Alternative*

Under the No Action Alternative, impacts to water resources associated with the Proposed Action would not occur because the Proposed Action would not be built. Ongoing activities in the area would continue.



### Finding on the Public Land Health Standard 5 (Water Quality)

Land Health Assessments for the DeBeque/Roan Creek landscape area were completed in 2004 (BLM 2009b). Construction and operation of the Proposed Action could contribute to diminished water quality if selenium-bearing sediment from the construction ROW entered surface drainages, or if newly exposed sediment is allowed to leach selenium to surface drainages. Reservoir Ditch would be crossed “in the dry” using a flume or dam-and-pump method. With implementation of project design features and measures to protect water quality, the Proposed Action would have minimal impact on water quality.

## **3.3 BIOLOGICAL RESOURCES**

### **3.3.1 Invasive Non-native Species**

#### Current Conditions

Three categories of noxious weeds are identified under the Colorado Noxious Weed Act (Title 35, Article 5.5). The “A” list includes species in Colorado that the Department of Agriculture Commissioner designates must be eradicated. The “B” list includes species designated (in consultation with the state noxious weed advisory committee, local governments, and other interested parties) for inclusion in state noxious weed management plans designed to stop the continued spread of these species. The “C” list includes species for which the goal is to provide additional education, research, and biological control resources to jurisdictions that choose to require management of these species (Colorado Department of Agriculture 2012).

Surveys were conducted within 30 meters of the Proposed Action where surveys were permitted (WWE 2013). No List A species were found within the project area, but List B and List C species were observed (Table 3.3-1). Of List B species, the most common was tamarisk, and large shrub or small tree. The most common List C species was cheatgrass, an annual. Some of the state-listed species present in the project area are also on the Mesa County noxious weed list (Mesa County 2009) and the Garfield County noxious weed list (Garfield County 2011). Not all property within 30 meters of the Proposed Action was surveyed in 2013 because survey access was denied. It therefore is likely that additional noxious weeds are present, especially in old, inactive agricultural fields (WestWater Engineering 2013).

**Table 3.3-1  
Noxious Weeds and Invasive Non-Native Plant Species Observed in the Project Area**

<b>Common and Scientific Name</b>	<b>Mesa County</b>	<b>Garfield County</b>	<b>Where Observed (WWE 2013)</b>
<b>Colorado B List</b>			
Russian knapweed <i>Acrotilon (Centaurea) repens</i>	X	X	Along two-track near Reservoir Ditch and within the DeBeque Pumping Station.
Hoary cress (Whitetop) <i>Cardaria draba</i>	X	X	Along or near the Reservoir Ditch on BLM land.
Russian olive <i>Elaeagnus angustifolia</i>		X	Along or near the Reservoir Ditch and one drainage/ditch on private property.
Tamarisk (Saltcedar) <i>Tamarix ramosissima</i> , <i>Tamarix parviflora</i>	X	X	Along or near the Reservoir Ditch, along another ditch on private property, and within the vicinity of the DeBeque Pumping Station.
<b>Colorado C List</b>			
Downy brome (Cheatgrass) <i>Bromus tectorum</i>			Throughout the project area

<b>Common and Scientific Name</b>	<b>Mesa County</b>	<b>Garfield County</b>	<b>Where Observed (WWE 2013)</b>
Chicory <i>Chicorium intybus</i>		X	Along or near the Reservoir Ditch and one drainage.
Field bindweed <i>Convolvulus arvensis</i>			Along or near the Reservoir Ditch on BLM land.
Redstem filaree <i>Erodium cicutarium</i>			Throughout
Halogeton <i>Halogeton glomeratus</i>			Throughout

## Environmental Consequences

### *Proposed Action*

The Proposed Action could affect abundance of noxious weeds through one or more of the following pathways:

1. Clearing native vegetation and exposing bare soil ground.
2. Translocating weeds from established infestations to newly cleared ground by personnel, vehicles, and construction equipment.
3. Reducing vigor and reproduction of native plants through dust deposition, interference with photosynthesis, and impacts to pollinators.

Surface disturbance, equipment placement and operation, foot traffic, and other activities associated with the Proposed Action could increase the distributions of established weed species and introduce new invasive species into areas not currently infested. Clearing native vegetation and exposing bare ground, especially within closed canopy big sagebrush communities, allows invasive species, particularly annuals, to become established at the expense of perennial bunchgrasses (West 1988).

Weeds would be treated prior to ground disturbance. Disturbed areas revegetated immediately after construction would be less likely to be infested by weeds than if left as exposed soil for longer periods. If revegetation efforts are not successful, weed infestation would be much more likely to occur and more likely to require control through use of herbicides or other means.

As mandated by the Colorado Noxious Weed Act and the Colorado Oil and Gas Conservation Act and in conformance with the Weed Management and Invasive Species Program (also see BLM 2007a), oil and gas operators are required to control noxious weeds on lands disturbed during oil and gas exploration and development, including pipelines and both private and BLM lands. To improve the effectiveness of weed control measures, weeds would be treated prior to ground disturbance. To prevent the spread of invasive species where surveys have not been conducted, inspections would be conducted prior to mobilization of equipment onto public lands and other private lands surveyed to ensure that all construction equipment and vehicles are clean and free of soil, mud, and plant material.

Protective design features and mitigation measures to minimize the invasion or spread of noxious weeds and other undesirable plant species are presented in Appendices A and B. These would be attached as stipulations to the ROW Grants. Based on the requirement for pre-treatment of weeds, prompt revegetation, and long-term monitoring and additional weed control as needed, the Proposed Action would result in a short-term increase in the potential for weed infestations but no significant long-term impacts.

### *No Action Alternative*

Under the No Action Alternative, none of the direct and indirect effects associated with the Proposed Action resulting from invasive non-native species would occur. State-listed noxious weeds and other invasive non-native species would continue to affect native, unaltered vegetation as well as existing disturbed vegetation and habitat in the project area.

### **3.3.2 Vegetation (includes a finding on Standard 3)**

#### Current Conditions

The Proposed Action is located within the Roan Creek valley near the toe slope of the western cliffs. Elevations range from about 4,950 feet to 5,150 feet. As in other parts of the state, local climates in western Colorado are influenced by elevation and the characteristic canyon-plateau topography (Doesken et al. 2003). The climate of the project area is characterized as semi-arid, where the average annual precipitation ranges from 10 to 16 inches for most of the project vicinity (Daly and Taylor 2012). Precipitation is slightly elevated during fall, and June being the driest month. The Proposed Action overlies Quaternary alluvia, landslides and slope wash deposits gravels, and Tertiary geologic units including Molina and Atwell Gulch (barely within 100 meters of the project) members of the Wasatch Formation. These environmental factors define the vegetation types present within the project area.

Existing vegetation for the project area was classified using GIS data coverages of vegetation from the GJFO. Vegetation classified was similar to vegetation types described by biological surveyors within the Biological Survey Report (WestWater Engineering 2013). Vegetation in the project area can be defined as one of five major types: 1) Forest and Woodland, 2) Shrubland, 3) Graminoid and Forb, 4) Riparian, and 5) Developed Land (a combined grouping of agriculture, industrial, urban and mine lands). Each major type is further subdivided by dominant vegetation species present. Overall, density and composition of vegetation are driven by aspect, substrate, and resulting available moisture. Vegetation on south-facing slopes is generally sparser due to xeric conditions while vegetation on north-facing slopes can be considerably denser, characteristic of more mesic conditions.

Vegetation communities in the project area are a mixture of sagebrush shrublands, greasewood flats, and juniper woodlands. The southern half of the project area is mostly comprised of agricultural fields. Sagebrush shrublands are composed of big sagebrush, yellow rabbitbrush, plains prickly pear, greasewood, shadscale saltbush, forbs, and grasses. Utah juniper dominates the juniper woodland types, with an understory of big sagebrush, Utah serviceberry, forbs, and grasses. Riparian areas along the irrigation ditches are dominated by narrowleaf willow, greasewood, Fremont cottonwood, forbs, and grasses. Riparian areas have been invaded by exotic species, including saltcedar or tamarisk, Russian olive, chicory, and whitetop. Previously disturbed, developed vegetation also occurs in the project area and includes existing pipeline ROWs, abandoned and active agricultural fields, aboveground structures, and roads (WestWater Engineering 2013).

#### Public Land Health Standard 3 (Plant and Animal Communities)

Land Health Assessments for the DeBeque/Roan Creek landscape area were completed in 2004 and 2006 (BLM 2009b). Approximately 17 percent of the assessed area was not meeting Standard 3 due to multiple factors, including (BLM 2009b):

- Invasive species (cheatgrass), with very few perennials

- Past grazing, drought some present grazing
- Surface disturbances related to oil and gas activity, specifically, poorly revegetated pipelines

All or portions of the project area failed to meet Land Health Standard 3 in 2009 (BLM 2009b).

### Environmental Consequences

#### *Proposed Action*

The Proposed Action could affect vegetation through one or more of the following pathways:

1. Direct removal of vegetation during construction of the pipelines and DeBeque Pumping Station.
2. Damage or mortality of plants by dust deposited on photosynthetic surfaces during construction.
3. Changes in herbivory by domestic and/or native herbivores caused by displacement from affected areas or attraction to newly re-vegetated sites.
4. Introduction or an increase in noxious weeds could alter vegetation cover and species composition, potentially out-competing native plant species.

Construction of the Proposed Action would directly affect vegetation by removal. Direct effects to herbaceous vegetation would be expected to be temporary (assuming vegetation becomes re-established within 5 years of disturbance), whereas effects to shrub-dominated and forest-dominated vegetation would persist for more than 5 years. For example, sagebrush can take up to 10 to 15 years to become reestablished (West 1988). Mature pinyon-juniper woodlands may be more than 140 years old, originating in pre-settlement times (Miller et al. 2008) and would not become reestablished in the life of the project, if removed. Brush-hogging techniques would be used for clearing in big sagebrush shrublands, where appropriate, to leave root structure intact and to preserve seed stock and promote faster sagebrush revegetation (Black Hills et al. 2013).

Damage or mortality to individual plants as a result of decreased light transmission due to dust deposited directly on leaves or other photosynthetic surfaces could occur due to increased traffic along existing access roads during construction and operation. Dust from construction and related traffic could impair photosynthesis, gas exchange, transpiration, leaf morphology and stomata function (Farmer 1993, Sharifi et al. 1997, Rai et al. 2009). Dust from construction and related traffic could also interfere with plant reproduction by affecting pollinators during the flowering season. Fugitive dust on the access roads and within disturbed surfaces would be controlled during construction to minimize effects to adjacent vegetation (Black Hills et al. 2013).

Indirect effects to vegetation might occur if the Proposed Action displaced native and domestic herbivores, causing excessive browsing and/or grazing on vegetation resources that otherwise would not occur. Alternatively, herbivores could be attracted to unaffected vegetation adjacent to newly revegetated locations, causing excessive browsing and grazing following restoration.

Indirect effects to native vegetation could occur if invasive, non-native species became established in cleared, disturbed areas, resulting in infestations that might limit or prohibit growth of native and/or desirable species. Weed seeds or cuttings of some species could be transported naturally (wind and water) or accidentally (vehicles or other equipment) to the disturbed areas. Weed seeds may be present in the native soil materials and the removal of vegetation cover and soil disturbance might promote weed establishment at the expense of desirable species. In accordance with Standard COAs, all pipeline-related disturbed surfaces would be revegetated and reclaimed immediately

following pipeline installation, which would minimize disturbed substrate availability for noxious weed establishment.

The Proposed Action would result in removal of approximately 36.34 acres of vegetation on BLM and private land combined (Table 3.3-2). The majority of effects would be to graminoid/forb communities (15.75 acres, 43.3% of the total), followed by big sagebrush shrubland (15.1 acres, 41.3% of the total). However, the project has been placed adjacent to or within existing disturbance (TransColorado pipeline, roads, agriculture) where possible, and most vegetation effects are to previously disturbed vegetation. An additional 9.68 acres has previously been disturbed.

**Table 3.3-2**  
**Areas (acres) of Vegetation Types Affected by the Proposed Action**

Vegetation Type <sup>1</sup>	Habitat Previously Disturbed <sup>2, 3</sup>	Habitat Disturbed by project <sup>4</sup>		Project Total <sup>4</sup>
		ROWs	TUAs	
Forested/Woodland				
Pinyon-juniper woodland	0.07	0.98	0.27	1.25
Forest/Woodland Subtotal	0.07	0.98	0.27	1.25
Shrubland				
Big sagebrush shrubland type	3.16	2.71	1.08	3.79
Greasewood fans and flats type	1.32	7.57	1.82	9.40
Desert Shrubland (Saltbush)	0.0	0.47	1.44	1.91
Shrubland Subtotal	4.48	10.75	4.34	15.10
Graminoids and Forbs				
Grass / Forb mix	4.32	14.78	0.97	15.75
Grass / Forb Subtotal	4.32	14.78	0.97	15.75
Riparian Vegetation				
Cottonwoods	0.19	0.41	0.0	0.41
Riparian Subtotal	0.19	0.41	0.0	0.41
Developed Land				
Agriculture	0.46	2.66	0.30	2.96
Rangeland	0.16	0.67	0.21	0.88
Developed Subtotal	0.62	3.33	0.51	3.84
Total	9.68	30.25	6.09	36.34

<sup>1</sup> Source: GJFO BLM Vegetation Coverage

<sup>2</sup> Existing disturbance delineated for proposed project area.

<sup>3</sup> Previously disturbed areas not included in project Total.

<sup>4</sup> Includes both BLM and private lands. Does not include Kobe Pumping Station (25.34 acres).

Protective design features and mitigation measures to minimize impacts to vegetation and facilitate restoration of disturbed plant communities are presented in Appendices A and B. These would be attached as stipulations to the ROW Grants. Based on collocation of the pipeline with an existing, previously disturbed pipeline corridor and protective design features and mitigation, the Proposed Action is not expected to have significant adverse impacts on vegetation.

### *No Action Alternative*

Under the No Action Alternative, none of the direct and indirect effects to vegetation associated with the Proposed Action would occur. Vegetation present in the project area (Table 3.3-2) would persist into the foreseeable future. However, it is likely that native vegetation and existing disturbed shrub vegetation would continue to be affected by infestations of non-native annual species, especially cheatgrass, in the foreseeable future. Noxious weeds would continue to affect native vegetation cover, vegetation composition and species diversity and plant vigor.

### Finding on the Public Land Health Standard 3 (Plant and Animal Communities)

New surface disturbances caused by the Proposed Action could result in new areas for invasion by noxious weeds, including cheatgrass. With strict adherence to the protective measures described above in Section 3.3.1/Invasive, Non-native Species, and Section 3.3.2/Vegetation, the Proposed Action may not further degrade plant communities in the assessment area. Implementation of measures to eliminate or reduce the spread or introduction of noxious weeds, as outlined in the BLM's weed management plan (BLM 2007a) would help prevent more degradation of plant communities.

## **3.3.3 Wetlands and Riparian Zones (includes a finding on Standard 2)**

### Current Conditions

Wetlands are subject to protection under federal law and Executive Order 11990, regardless of land ownership. The USEPA and the USACE use the following definition of wetland to administer the Clean Water Act's Section 404 permit program for dredge and fill activities. "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (40 CFR §230.3 and 33 CFR §328.3)

WestWater Engineering performed a wetland evaluation in 2013, limited to portions of the project area where permitted by the private landowner (WestWater Engineering 2013). Potentially jurisdictional wetlands were identified on the basis of the vegetation, soils, and hydrologic characteristics present at the site in accordance with the 1987 USACE Wetlands Delineation Manual and the Arid West Regional Supplement to USACE Wetland Delineation Manual, April 2008. Four potential USACE jurisdictional Waters of the U.S. were identified within the project area, including Reservoir Ditch and unnamed intermittent or ephemeral tributaries and wetlands. Additional surveys were conducted by WestWater Engineering in 2013 on private lands. That information has been submitted to the USACE in the Clean Water Act Section 404 (Nationwide) permit application for this project.

Riparian areas occur as narrow zones adjacent to drainages and wetland areas and generally exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Potential fringe wetlands occur on either side of Reservoir Ditch and are dominated by narrowleaf willow, greasewood, Fremont cottonwood, forbs, and grasses (WestWater Engineering 2013). Riparian zones along the drainages within the project area have been degraded by invasive species including saltcedar or tamarisk, Russian olive, chicory, and whitetop (hoary cress) (WestWater Engineering 2013).

The BLM conducted Proper Functioning Condition (PFC) assessments for portions of stream reaches on public lands within the DeBeque/Roan Creek landscape. Properly functioning riparian

systems have the ability to recover from major disturbances such as those associated with fire, grazing and flooding. Approximately 7.09 miles of Roan Creek, a principal drainage in the project area received a PFC assessment in 2004, of which 5.48 miles were considered properly functioning, 1.06 miles were functioning at risk, and 0.55 mile was not functioning. Roan Creek (approximately 1.61 miles) was considered functioning at risk or not functioning because of insufficient stream bank vegetation resulting from heavy livestock use, as well as unstable banks as a result of road encroachment and crossings (BLM 2012b).

#### Public Land Health Standard 2 (Riparian Systems)

Land Health Assessments for the DeBeque/Roan Creek landscape area indicate presence of three lotic (flowing-water) riparian systems (BLM 2009b).

#### Environmental Consequences

##### *Proposed Action*

Construction in wetlands and riparian zones could potentially degrade water quality, affect hydrology, and affect wildlife. Four potential Waters of the U.S. were identified within 100 feet of the proposed construction-ROW (Table 3.3-3). Potential additional wetlands and other Waters of the U.S. (on private lands) are identified in Section 404 application submitted to USACE.

**Table 3.3-3  
Potential Waters of the U.S. and Wetlands Documented during  
Surveys Conducted in 2013 within 100 feet of the Proposed Disturbance <sup>1</sup>**

<b><i>Project Component</i></b>	<b><i>Wetland Description<sup>2, 3</sup></i></b>	<b><i>Proximity to Proposed Action</i></b>
Pipeline Construction ROW	No OHWM within proposed disturbance; channel becomes more defined approximately 50 feet upstream.	On edge of construction ROW; BLM lands.
Pipeline Construction ROW	Reservoir Ditch and approximately 4 feet of potential fringe wetlands on both sides of ditch; ditch is approximately 7 feet wide and 8 inches deep.	Approximately 0.009 acre of the delineated wetland occurs within the construction ROW. Impact would be 0.0 acre if the ditch is bored beneath instead.
Pipeline Construction ROW	Reservoir Ditch and approximately 4 feet of potential fringe wetlands on both sides of ditch; ditch is approximately 7 feet wide and 8 inches deep.	Construction ROW disturbance crosses Reservoir Ditch and approximately 0.008 acre of delineated potential fringe wetland. Impact would be 0.0 acre if the ditch is bored beneath instead.
DeBeque Pumping Station	Unnamed intermittent or ephemeral tributary of the Colorado River; OHWM approximately 6 inches deep and 5 feet wide (braided channel).	Within southwest portion of proposed disturbance.
DeBeque Pumping Station	Unnamed intermittent or ephemeral tributary of the Colorado River; OHWM approximately 8 inches deep and 2.5 feet wide.	Within southwest portion of proposed disturbance.
<sup>1</sup> Waters of the U.S. and potential wetlands documented during surveys (WestWater Engineering 2013). <sup>2</sup> Source: WestWater Engineering (2013). <sup>3</sup> OHWM = Ordinary High Water Mark.		

Direct disturbance would be expected at potential fringe wetlands delineated on both sides of Reservoir Ditch, which would be affected at two points, which could include direct removal or trampling of vegetation, loss of root mass stabilizing banks, compaction of soils in work areas and

introduction or spread of noxious and invasive weeds or undesirable increasers that may be present in the area that may displace native riparian species.

Site-specific BMPs would be applied to minimize effects to wetlands during construction. Construction could affect fringe wetlands associated with Reservoir Ditch. Additional drainages with potential wetlands may also be crossed on private lands. Conservation measures for these drainages would implement BMPs identified by the USACE in response to the Clean Water Act Section 404 (Nationwide) permit application.

Protective design features and mitigation measures to minimize impacts to vegetation and facilitate restoration of disturbed plant communities are presented in Appendices A and B. These would be attached as stipulations to the ROW Grants. Based on these protections and the very minor amount of potential disturbance of wetlands or other Waters of the U.S., the Proposed Action is not expected to result in significant adverse impacts to these resources.

#### *No Action Alternative*

Under the No Action Alternative, impacts to wetlands or other Waters of the U.S. associated with the Proposed Action would not be caused because the Proposed Action would not be built. Ongoing activities in the project area would continue.

#### Finding on the Public Land Health Standard 2 (Riparian Systems)

With appropriate protective and mitigation measures, the Proposed Action would not be expected to adversely affect Standard 2.

### **3.3.4 Special Status Animal Species**

#### Current Conditions

Federally listed or candidate threatened or endangered animal species known to occur or potentially present in the project area are included in Table 3.3-4. BLM sensitive species within the GJFO area are included in Table 3.3.

#### FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES

USFWS (2013a) identified 10 vertebrate species listed under the ESA as potentially occurring in Mesa and Garfield counties. One additional species is a candidate, also included in Table 3.3-4. Species indicated as present or potentially present are discussed following the Table.

Colorado River Cutthroat Trout (Colorado/Gunnison/Dolores Lineage). Biologists have recognized two distinct lineages of native strains of cutthroat trout within the GJFO. One of these, currently called the “Green Lineage,” consists of cutthroats native to the Colorado, Gunnison, and Dolores Rivers and tributaries. Populations of Green Lineage cutthroats are currently being managed by the USFWS as a threatened species. Cutthroat of any lineage have not been found below the confluence of Roan and Carr creeks, approximately 16 miles upstream from the project area. Consequently, the Proposed Action is not expected to affect Green Lineage cutthroat trout.

**Table 3.3-4**  
**Listed, Proposed, and Candidate Threatened or Endangered Animal Species**  
**in the Project Region and Potential for Occurrence in the Project Area**

Species Common Name and Scientific Name	Status <sup>1</sup>	Species or Critical Habitat Listed in County		Habitat	Potential for Occurrence
	ESA	Mesa	Garfield		
Mammals					
Canada lynx <i>Lynx canadensis</i>	FT	Yes	Yes	Subalpine coniferous forests or connectors	No habitat
Wolverine <i>Gulo gulo</i>	FPT	Yes	Yes	Subalpine coniferous forests or connectors	No habitat
Birds					
Mexican spotted owl <i>Strix occidentalis lucida</i>	FT	No	Yes	Forested foothills and montane canyons	No habitat
Yellow-billed cuckoo <i>Coccyzus americanus</i>	FPT	Yes	Yes	Primarily riparian forests with tall shrub canopy	Marginal habitat
Gunnison's sage-grouse <i>Centrocercus minimus</i>	FPE	Yes PCH	No	Sagebrush steppe south of the Colorado River	No habitat
Greater sage-grouse <i>Centrocercus urophasianus</i>	FC	Yes	Yes	Sagebrush steppe north of the Colorado River	No habitat
Fish					
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i> ("Green Lineage")	FT	Yes	Yes	Cold, clear headwaters streams isolated from non-native cutthroats. Indigenous in the Colorado, Gunnison, and Dolores drainages	Habitat marginal
Colorado pikeminnow <i>Ptychocheilus lucius</i>	FE	Yes CH	Yes CH	Large, deep, swift rivers	Colorado R. near Site
Humpback chub <i>Gila cypha</i>	FE	Yes CH	Yes		Colorado R. near Utah Line
Bonytail <i>Gila elegans</i>	FE	Yes CH	Yes		Colorado R. near Utah Line
Razorback sucker <i>Xyrauchen texanus</i>	FE	Yes CH	Yes CH	Large, deep, swift rivers	Colorado R. near Site
<sup>1</sup> FE = Federal Endangered, FT = Federal Threatened, FPT = Federal Proposed Threatened, FPE = Federal Proposed Endangered, FC = Federal Candidate.					

**Colorado River Endangered Fishes.** Four species of Colorado River Basin big-river fishes (the Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker) are federally listed as endangered (USFWS 1970, 1980, 1991). Critical habitat (USFWS 1994) has been designated for all four species in the Colorado River and 100-year floodplain within Mesa County, of which the critical habitat for two species—the Colorado pikeminnow and razorback sucker—extends upstream past the project area to as far as Rifle, Colorado in Garfield County.

Although no documented occurrence or use by the pikeminnow extends upstream from Palisade, historical records indicate that the river reach between DeBeque and Rifle has provided important habitat to razorback suckers (Osmundson 2001). Razorback suckers were found spawning in areas without flow, off the main channel upstream from De Beque and in riverside ponds 1 mile downstream from De Beque during the early 1990's (Osmundson 2001). Larval razorbacks have

been collected in the Colorado River downstream from the Price-Stubb Diversion Dam (River Mile 185.1) between 2004 and 2007 (Osmundson and Seal 2009). Fish passageways were completed at the Grand Valley Irrigation Company Diversion in 1997, at the Price-Stubb Diversion Dam in 2008, and for the Grand Valley project Diversion in 2005 (Valdez et al. 2011). The fish passageways would allow Colorado pikeminnows and razorback suckers to access about 50 miles of critical habitat from Palisade to Rifle (Bureau of Reclamation 2003).

According to the Federal Emergency Management Agency (FEMA), the 100-year floodplain associated with the Colorado River extends upstream along Roan Creek for 3.8 miles from its confluence with the river to the Mesa-Garfield County line north of the junction of CR 200 and Mesa County 45 Road (Roan Creek Road). That portion of Roan Creek is therefore included as critical habitat for Colorado pikeminnow and razorback sucker.

The distribution of humpback and bonytail chubs does not currently extend as far upstream as the pikeminnow and razorback sucker. For the humpback chub, the confluence of the Colorado and Gunnison River appears to be the current upstream limit. For the bonytail chub, occurrences have not been document upstream from near the Colorado-Utah line.

## BLM SENSITIVE SPECIES

The BLM (2009c) has identified seven species of mammals, nine birds, three reptiles, three amphibians, five and one 5 fish, and 1 invertebrate as Sensitive Species known or expected to occur within the GJFO area, including Garfield and Mesa counties (Table 3.3-5). Although some BLM sensitive species are indicated in Table 3.3-5 as present or possibly occurring in the project area, none of these species was observed during project-specific surveys in 2013 (WestWater Engineering 2013).

**Table 3.3-5**  
**BLM Sensitive Wildlife Species Potentially Present in the Project Vicinity**

<b>Common Name Scientific Name</b>	<b>Habitat</b>	<b>Regional Distribution</b>	<b>Potential for Occurrence</b>
<b>Mammals</b>			
Townsend's big-eared bat <i>Corynorhinus townsendii pallescens</i>	Montane forests, pinyon-juniper woodlands, semi-desert shrublands.	Throughout Mesa Co.	Possible
Spotted bat <i>Euderma maculatum</i>	Montane ponderosa pine forest, pinyon-juniper woodlands, aspen, semi-desert shrublands.	Limited distribution in Mesa Co.	Unlikely
Fringed myotis <i>Myotis thysanodes</i>	Ponderosa pine, greasewood, oakbrush, saltbush shrublands.	Book Cliffs, Mesa Co.	Possible
Big free-tailed bat <i>Nyctinomops macrotis</i>	Rocky slopes, canyon lands, roosts in crevices.	Book Cliffs, Mesa Co.; overall range includes project area	Possible
White-tailed prairie dog <i>Cynomys leucurus</i>	Open shrublands, arid grass-shrub and mountain valleys mostly in semidesert shrublands, also agriculture/pasture.	Overall range includes project area	Possible
Kit fox <i>Vulpes macrotis</i>	Semidesert shrubland and margins of pinyon-juniper woodlands; sagebrush, saltbush, greasewood.	Overall range south/southwest of project area.	Unlikely

<b>Common Name Scientific Name</b>	<b>Habitat</b>	<b>Regional Distribution</b>	<b>Potential for Occurrence</b>
Desert bighorn sheep <i>Ovis canadensis nelsoni</i>	Introduced near Colorado National Monument in 1979; steep inaccessible cliffs, areas dominated by grasses.	Occupied habitat is >18 miles away.	None
<b>Birds</b>			
American white pelican <i>Pelecanus erythrorhynchos</i>	Larger reservoirs, breeding on islands in eastern Colorado. Habitat during migration is present near the Colorado River.	Irregular migrant, Colorado River	Possible (Colorado River; migration)
White-faced ibis <i>Plegadis chihi</i>	Marsh edges, wet meadows, reservoir shorelines. Habitat during migration is present near the Colorado River.	Irregular migrant, shallow lake margins	No habitat
Bald eagle <i>Haliaeetus leucocephalus</i>	Reservoirs, rivers, wintering in semidesert and grasslands.	Winter habitat in project area; roost sites < 1 mile.	Present (winter), Colorado River
Northern goshawk <i>Accipiter gentilis</i>	Forests of aspen, ponderosa pine, lodgepole pine.	Resident, subalpine spruce-fir and aspen; winter visitor, pinyon-juniper	None
Ferruginous hawk <i>Buteo regalis</i>	Grassland, semidesert shrublands, rare in pinyon-juniper. Nests on isolated structures.	Potential nesting habitat on Book Cliffs, Mesa Co.	Unlikely
Western burrowing owl <i>Athene cunicularia</i>	Grasslands in or near prairie dog towns.	Prairie dog habitat within project area	Possible
Long-billed Curlew <i>Numenius americanus</i>	Short-grass grasslands, wheat fields, dry land agriculture near water. Habitat during migration is present near the Colorado River.	No records, no habitat present.	Unlikely
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	In Mesa County, migrants on mudflats and sandy shorelines of lower Gunnison River and Colorado River.	No records, no habitat present.	Unlikely
Brewer's sparrow <i>Spizella breweri</i>	Mostly in sagebrush shrubland but also in mountain-mahogany and rabbitbrush; mesas and foothills.	Widely distributed in sagebrush steppe.	Possible
<b>Reptiles</b>			
Longnose leopard lizard <i>Gambelia wislizenii</i>	Flat or gently sloping, open ground shrublands.	Suitable habitat present	Possible
Milk snake <i>Lampropeltis triangulum taylori</i>	Grasslands, sandhills, canyons, open woodlands ponderosa, pinyon-juniper. Not distributed in western Garfield County.	Suitable habitat present.	Possible
Midget faded rattlesnake <i>Crotalus oreganus concolor</i>	Most terrestrial habitats in western and west-central Colorado.	Suitable habitat present.	Possible
<b>Amphibians</b>			
Great Basin spadefoot <i>Spea intermontana</i>	Pinyon-juniper woodlands, sagebrush, semidesert shrublands, stream floodplains, canyon bottoms.	Suitable habitat present.	Possible
Canyon treefrog <i>Hyla arenicolor</i>	Intermittent streams in deep, rocky canyons with pinyon-juniper vegetation.	Record 15 miles away <sup>1</sup> (CNHP).	None
Northern leopard Frog <i>Lithobates pipiens</i>	Margins, banks of marshes, ponds, streams, other permanent water.	Suitable habitat present.	Possible

<b>Common Name Scientific Name</b>	<b>Habitat</b>	<b>Regional Distribution</b>	<b>Potential for Occurrence</b>
<b>Fish</b>			
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i> ("Blue Lineage")	Clear, cold water with gravel bottoms in small headwater streams; spawns from April to June. Indigenous in the Yampa, White, and Green River drainages.	Known in upper Roan Creek drainage	None
Roundtail chub <i>Gila robusta</i>	Colorado River drainage, mostly large rivers but also smaller streams and lakes. Spawns in early summer after spring runoff.	Present in Colorado River	Possible (Colorado River)
Bluehead sucker <i>Catostomus discobolus</i>	Headwater streams to large rivers with moderate velocity, not in standing water; prefers rock substrate. Spawns in spring or summer.	Present in Colorado River	Possible (Colorado River)
Flannelmouth sucker <i>Catostomus latipinnis</i>	Larger streams and rivers with riffles, eddies, backwaters. Spawns early May to early August.	Present in Colorado River.	Possible (Colorado River)
Mountain sucker <i>Catostomus platyrhynchus</i>	Smaller rivers and streams with gravel, sand, mud bottoms, in areas of moderate current.	Not in Mesa Co.	None
<sup>1</sup> CNHP = Colorado Natural Heritage Program			

No BLM sensitive species have been documented in the project area. However, suitable habitat is present in that could support some of the species listed in Table 3.3-5 (WestWater Engineering 2013). CPW has mapped bald eagle winter habitat along Roan Creek and the Colorado River within the project area. Also, winter night roosts have been delineated within 1 mile of the project. The bluehead sucker, flannelmouth sucker, and roundtail chub have been documented in the Colorado River at Cameo, downstream from Roan Creek (Deacon and Mize 1997) but have not been observed within Roan Creek.

### Environmental Consequences

#### *Proposed Action*

#### FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES

Species listed under the ESA that would be potentially affected by the Proposed Action are limited to the four endangered Colorado River big-river fishes. As described above, the Green Lineage cutthroat trout (threatened) is not known in Roan Creek below its confluence with Carr Creek. Although riparian cottonwood forest occurs in the project vicinity, the lack of a well-developed tall-shrub canopy makes the habitat unsuitable for the yellow-billed cuckoo (candidate).

The four endangered big-river fishes could be affected through one or more of the following pathways:

1. Water depletions from the Colorado River system.
2. Decreased water quality from mobilized selenium in the Colorado River and tributaries that would be affected by construction of the Proposed Action.
3. Direct water withdrawal from critical habitat in the Colorado River with potential impingement and entrainment in pump intakes of larval or juvenile endangered species.

4. Hazardous materials (diesel fuel, lubricants and herbicides) affecting tributaries crossed by the Proposed Action and critical habitats downstream in the Colorado River.

Water Depletions. Water for hydrostatic testing of the pipeline would be obtained from frac tanks supplied by the Kobe Pipeline. The USACE has prepared a Biological Assessment discussing impacts and effects of the Kobe project on federally listed species. The effects include water depletions from the Colorado River. The consultation included the water intake structure and water pipeline. The USFWS has prepared a Biological Opinion (6-5-85-F-006 – December 21, 1984), and a mitigation fee was paid to offset possible effects to the endangered Colorado River Fish through water withdrawals. The water used for hydrostatic testing for the Proposed Action would fall under this consultation with the USFWS.

Water for dust control would be obtained from Latham Ponds. In May 2008, the BLM prepared a Programmatic Biological Assessment (PBA) that addresses water depleting activities associated with the BLM's fluid minerals program in the Colorado River Basin in Colorado. In response to the BLM's PBA, the USFWS issued a Programmatic Biological Opinion – PBO (ES/GJ-6-CO-08-F-0006, USFWS 2008a) on December 19, 2008, which determined that the BLM water depletions from the Colorado River Basin are not likely to jeopardize continued existence of the Colorado pikeminnow, humpback chub, bonytail chub, or razorback sucker and that the BLM water depletions are not likely to destroy or adversely modify designated critical habitat.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin was initiated in January 1988. The Recovery Program serves as the reasonable and prudent alternative to avoid jeopardy and provide recovery to the endangered fishes by depletions from the Colorado River Basin. The PBO addresses water depletions associated with fluid minerals development on BLM lands, including water used for well drilling, hydrostatic testing of pipelines and dust abatement on roads. As a reasonable and prudent alternative in the PBO, the USFWS authorized the BLM to solicit a one-time contribution to the Recovery Implementation Program for endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by fluid minerals activities on BLM lands.

The average annual depletion associated with the dust control for the project (2.9 acre-feet) would be entered into the GJFO fluid minerals water depletion log, which would be submitted to the BLM Colorado State Office at the end of the Fiscal Year.

Decreased Water Quality. Selenium is a semi-metallic trace element widely distributed in Upper Cretaceous and Tertiary marine sedimentary rocks in the Western United States (BOR et al. 1998). Selenium is an essential trace element for animals in small amounts, but exposures to slightly higher amounts is toxic to vertebrates, often compounded by bioaccumulation of selenium through terrestrial and aquatic food chains (Hamilton 2004, BOR et al. 1998, Lemly 1993 and 1996, Peterson and Nebeker 1992).

All proposed surface disturbances would occur in selenium-containing (seleniferous) and salt-bearing geologic strata including the Wasatch Formation and recent alluvial deposits and landslides. Runoff from these strata has been related to elevated loads of salt and selenium concentrations in the Upper Colorado River Basin (Lieb et al. 2012). Water quality in Roan Creek is included in Colorado's Section 303(d) list of impaired waters due to concentrations of selenium (CDPHE 2012b). Additional surface disturbances from the project could increase selenium concentrations in Roan Creek. Critical habitat for the Colorado pikeminnow and razorback sucker extends to Roan Creek.

Selenium-laden sediment could also be mobilized during pipeline construction across drainages, if water is present. Dry open-cut pipeline construction, whether by flume or by dam-and-pump, would

be expected to generate less suspended sediment than wet open-cut construction (Trettel et al. 2002; Reid et al. 2004). Dry open-cut construction would be implemented if water is present in drainages at the time of construction.

Application of site-specific BMPs would minimize potential discharge of selenium-bearing sediments during construction. Because of the limited construction area in relation to typical flow volumes of potential receiving waters, surface-disturbing activities on soils derived from the Wasatch Formation and recent alluvial deposits and landslides would not be expected to increase selenium concentrations above acute or chronic standards.

Hazardous Materials. Diesel fuel spills could affect freshwater stream macroinvertebrates for more than one year after a spill and could affect aquatic substrates, and thus fish spawning, incubating, and rearing habitats for much longer periods (Lytle and Peckarsky 2001). The proponent's SWMP (Appendix C to the POD – Black Hills et al. 2013) would minimize potential for inadvertent fuel spills or release of other hazardous materials that might affect endangered Colorado River fishes and designated critical habitat downstream from the project area.

Herbicides. Control of noxious weeds on ground surfaces disturbed by the Proposed Action could require the use of commercial herbicides that might present a high toxicity risk to endangered fish species (e.g., Fairchild 2003), although some herbicides are practically non-toxic to fish (Washington State Department of Transportation 2011). The project would not involve use of herbicides within 100 feet of wetlands and floodplains to minimize the potential effects of herbicides on endangered Colorado River fish and designated critical habitat downstream from the project area.

Entrainment and Impingement. Fish, particularly larvae and juveniles, could be susceptible to entrainment and impingement at pump intakes. Entrainment occurs when a fish is diverted into the pump intake (usually fatal), while impingement occurs when the water flow velocity at the intake exceeds the swimming ability of a fish, trapping it against the pump intake screen, usually resulting in injury (National Marine Fisheries Service 2011). Impact due to entrainment and impingement of fish on pump intake screens depends on size of the fish, its swimming ability, and behavior in the vicinity of the intake, as well as flow velocity and depth, the rate of water withdrawal, screen mesh size, and design of the water intake (Canada Department of Fisheries and Oceans 1995).

The 1984 PBO Biological Opinion described Conservation Measures that would be implemented to minimize direct impact to the listed fish species. These measures would be used by the Kobe project to supply water to the temporary freshwater storage tank for hydrostatic testing.

Water for dust control would be obtained from an off-channel location (Latham Ponds), potentially connected to the Colorado River through groundwater exchange. No direct fish access is known between the Colorado River and Latham Ponds. As a result, water withdrawn from Latham Ponds would avoid potential direct impacts to the listed fish species from impingement or entrainment by pumping water.

## BLM SENSITIVE SPECIES

BLM sensitive animal species potentially present in the project area (listed as “possible” in Table 3.3-5) could be affected by the project, if present during construction. Potential impacts include habitat loss, habitat fragmentation, temporary displacement, and direct impacts to individuals (e.g., mortality and harassment). Effects on BLM sensitive bird species and appropriate conservation measures are discussed in Section 3.3.6, Migratory Birds.

Construction under the Proposed Action would remove approximately 36.34 acres of vegetation. Special status species, if present, would be displaced from habitats that are cleared of vegetation and from adjacent habitats. Previously disturbed vegetation would become reestablished to some degree within one to three growing seasons after construction, but shrub-dominated habitat would take longer (Section 3.3.2, Vegetation). Displacement from adjacent habitats would also be a short-term effect once construction and revegetation of disturbed areas is completed and human activity returns to low levels. Removal of pinyon-juniper woodland and big sagebrush shrubland would cause long-term effects, possibly affecting summer and/or winter bat roosts, cavity-nesting species, and species limited to pinyon-juniper and/or sagebrush habitats (Table 3.3-5).

Other potential impacts include mortality from operation of vehicles and heavy equipment. Although Some BLM sensitive wildlife species could be directly impacted by construction of the project by mortality from vehicles and heavy equipment. Observing speed limits would reduce but not eliminate this potential impact. However, the presence and, especially, the number and density of BLM sensitive species are very low, reducing this impact to negligible at the population level.

Effects on the northern leopard frog and BLM sensitive fishes as a result of transport of seleniferous sediments would be expected to be minimal, with impacts more likely to result from choking of surface waters and impacts from turbidity. Application of measures in the SWMP and Weed Management Plan (Appendices C and D to the POD – Black Hills et al. 2013) would minimize the potential for this impact and for the inflow of accidental spills or releases of fuels, solvents, and other toxic substances that affect sensitive aquatic species present within or downstream from the project area.

Larval and juvenile BLM sensitive fishes could be entrained or impinged on pump intakes by water withdrawals from surface waters. This impact is reduced by the low volume of water to be withdrawn in relation to the volume of the source waters.

Protective design features and mitigation measures to minimize impacts to vegetation and streams are presented in Appendices A and B. These would be attached as stipulations to the ROW Grants. Based on these protections, the limited area, and the limited construction period for the project, the Proposed Action is not expected to result in significant adverse impacts to BLM sensitive animal species.

#### *No Action Alternative*

Under the No Action Alternative, no direct or indirect effects from the Proposed Action on endangered or sensitive terrestrial and aquatic wildlife and their critical habitats would occur. However, ongoing activities in the project area would continue.

### **3.3.5 Special Status Plant Species (includes a finding on Standard 4)**

#### Current Conditions

#### **FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES**

The USFWS (2013a) has identified four federally listed plant species, but no species proposed or candidates for listing, in Mesa and Garfield counties, including two species with designated critical habitat (Table 3.3-6).

**Table 3.3-6**  
**Listed Threatened or Endangered Plant Species in the Project Region**  
**and Potential for Occurrence in the Project Area**

<b>Species and Status</b>	<b>Occurrence</b>	<b>Species and Critical Habitat Listed in County</b>		<b>Present?</b>
		<b>Mesa</b>	<b>Garfield</b>	
Parachute penstemon ( <i>Penstemon debilis</i> ) – Threatened	Sparsely vegetated, south-facing, steep, white shale talus of the Parachute Creek Member of the Green River Formation; 8,000 to 9,000 feet		Yes  Critical Habitat	No
DeBeque phacelia ( <i>Phacelia submutica</i> ) – Threatened	Sparsely vegetated, steep slopes in chocolate-brown, gray, or red clay on Atwell Gulch and Shire Members, Wasatch Formation; 4,700 to 6,200 feet	Yes  Critical Habitat	Yes  Critical Habitat	Assumed Present (Incomplete Surveys)
Colorado hookless cactus ( <i>Sclerocactus glaucus</i> ) – Threatened	Rocky hills, mesa slopes, and alluvial benches in salt desert shrub communities; often with well-formed microbiotic crusts; can occur in dense cheatgrass 4,500 to 6000 feet	Yes	Yes	Yes
Ute lady's-tresses orchid ( <i>Spiranthes diluvialis</i> ) – Threatened	Subirrigated alluvial soils along streams and in open meadows in floodplains; 4,500 to 7,200 feet		Yes	No

Parachute Penstemon. Parachute penstemon was listed as threatened on July 27, 2011 (USFWS 2011b). This plant is found in isolated populations on white shale talus in the Mahogany Zone of the Parachute Creek Member of the Green River Formation (Lyon et al. 2001) at elevations between 8,000 and 9,000 feet (USFWS 2011b), which does not occur in the project area (Hail and Smith 1997). This species has an extremely limited range and is known only to occur in shale talus slopes of the Roan Cliff from the Logan Mountain-Mount Callahan area east to the Anvil Points area, north of Interstate-70 near Rulison, Colorado (Lyon et al. 2001). Mount Logan is more than 4.5 miles northeast of the project area. The closest designated critical habitat unit for Parachute penstemon (Unit 2) (USFWS 2012) is more than 2 miles north of the project area. No plants were documented during project surveys (WestWater Engineering 2013) and the species is not expected to be present within the project area.

DeBeque Phacelia. DeBeque phacelia was listed as threatened on July 27, 2011 (USFWS 2011b). DeBeque phacelia is an annual forb endemic to Colorado and is found exclusively on sparsely vegetated, steep slopes in brown or gray clay on Atwell Gulch and Shire members of the Wasatch Formation within a 20-mile radius of the town of DeBeque (USFWS 2011b). The expansive clay soils are found in moderately steep slopes, benches, and ridgetops and have high shrink-swell potential that creates large cracks in the surface. These cracks provide suitable sites for seed dormancy and plant growth during the next wet season (USFWS 2012). DeBeque phacelia is currently known only in Garfield and Mesa counties within an elevation range of 4,600 to 7,450 feet (USFWS 2011b).

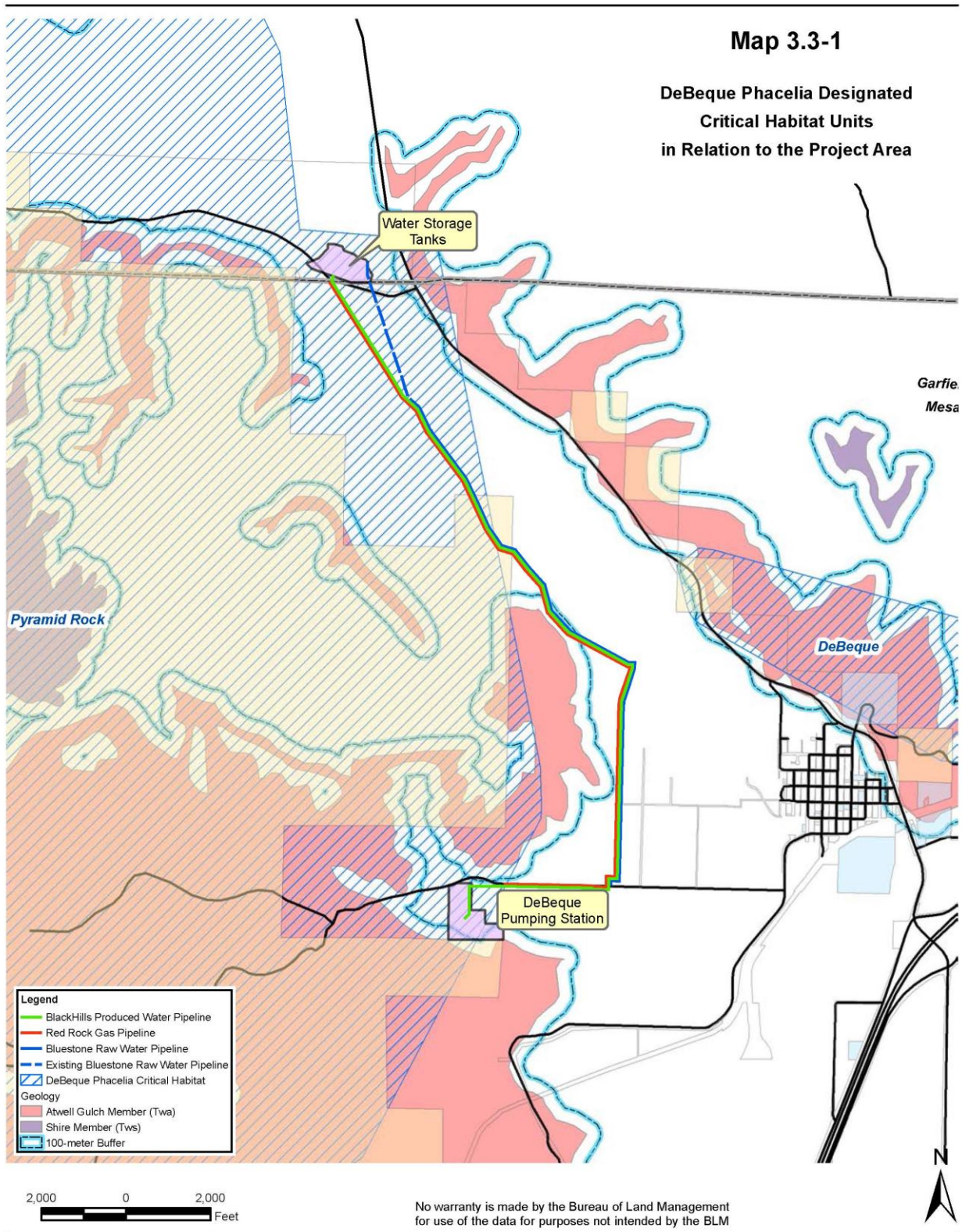
In 2012, the USFWS (2012) designated 25,484 acres of critical habitat for DeBeque phacelia within nine units in Garfield and Mesa counties, including Pyramid Rock (Unit 2) in the project area. All units are known to be occupied (Map 3.3-1). Primary constituent elements (PCEs) identified by the USFWS (2012) for DeBeque phacelia critical habitat include:

1. Colorful exposures of chocolate to purplish brown, dark charcoal gray, and tan clay soils in the Atwell Gulch or Shire members of the Wasatch Formation.
2. Moderately steep slopes (2 to 42 degrees; average 14 degrees), benches, and ridgetops adjacent to valley floors.
3. Elevations from 4,600 to 7,450 feet.
4. Less than 20 percent plant cover in barren areas within pinyon-juniper woodlands, mixed salt desert scrub and big sagebrush shrublands.
5. Areas with the above elements and also free from moderate to heavy disturbance when soils are dry and free from all disturbance when soils are wet.

DeBeque phacelia does not necessarily appear every year, and seeds can remain dormant for 5 years or longer, until the combination and timing of temperature and precipitation are optimal for germination (USFWS 2011b). Depending on growing conditions, the estimated number of plants fluctuates from 7,767 to 68,371 per year (USFWS 2011b). During typical years, seeds germinate in early April, plants flower from late April through late June, and fruits develop from mid-May through late June (USFWS 2011b). Once an individual plant's life cycle ends in late June or early July, the plant quickly deteriorates with little or no evidence of its existence (Ladyman 2003).

As recommended by the GJFO, surveys for DeBeque phacelia habitat were conducted for the project in 2013 within 200 meters of the construction ROW and temporary extra workspace sites where potential habitat (Atwell Gulch and Shire Members of the Wasatch Formation) occurs and survey permission was granted (BLM 2012a, WestWater Engineering 2013). Surveys in 2013 occurred outside the recommended survey window of May (USFWS 2013f). As a result, surveys focused on documentation and delineation of suitable DeBeque phacelia habitat within the project area.

Surveyors used a draft worksheet developed by the USFWS (2013f) to describe and evaluate DeBeque phacelia habitat identified in the project area. One area (0.15 acre) located within 200 meters of the project was delineated as marginal to unsuitable phacelia habitat. The marginal habitat was located outside the Shire and Atwell Gulch members but in the Wasatch Formation on Biedsaw-Sunup gravelly loams on 10 to 40 percent slopes (WestWater Engineering 2013) within designated critical habitat. Other surveys for DeBeque phacelia plants and habitat have occurred within the project area and have delineated suitable DeBeque phacelia habitat but are located farther than 200 meters from the project.



Colorado Hookless Cactus. Colorado hookless cactus is a federally listed threatened plant (USFWS 1979, 2007b, 2009) that occurs on river benches, valley slopes, and rolling hills in Delta, Garfield, Mesa, and Montrose counties, Colorado (USFWS 1990b). Colorado hookless cactus generally grows on soils that are unusually coarse, gravelly river alluvium above river floodplains and usually with Mancos shale with volcanic cobbles and pebbles as components on the surface (USFWS 2010b). The two population centers in Colorado include one on alluvial river terraces of the Colorado River and in the Plateau of Roan Creek drainages in the vicinity of De Beque, including the project area. The other is located on alluvial terraces of the Gunnison River extending from the town of Delta to southern Mesa County. Recent research by the Denver Botanic Gardens has determined that the two populations are genetically distinct (McGlaughlin and Ramp-Neale 2012). Approximately 19,000 individuals are estimated within the two populations (USFWS 2010b). No critical habitat has been designated or proposed for this species.

The Colorado hookless cactus produces pink flowers in April and May, with fruiting extending from May through June. Reproduction is predominantly sexual, although individuals may sprout multiple stems. Several species of ground nesting bees, flies, and ants are believed to be the primary pollinators for the cactus (USFWS 1990b). Pollinators include the honeybee (*Apis mellifera*) and native bees in the genera *Eucera*, *Ashmeadiella*, *Heriades*, *Agapostemon*, and *Lasioglossum* (Rechel et al. 1999).

Records compiled by the Colorado Natural Heritage Program (CNHP 2012) indicate that Colorado hookless cactus has been found in the vicinity of the project area. Surveys for Colorado hookless cactus were conducted within a 100-meter buffer from the construction ROW, temporary extra workspace sites, and other proposed facilities in 2013 where access was permitted, as recommended by the GJFO (BLM 2012a, WestWater Engineering 2013); approximately 74 acres were surveyed. Overall, 42 individual Colorado hookless cactus plants were documented. The majority of cacti were located within open sagebrush shrubland communities and two were located in an open saltbush/greasewood mix community with hard rocky soils (WestWater Engineering 2013). Previous surveys within the project area had documented additional cacti, although surveys in 2013 did not result in observations, and the earlier observations are therefore not included in the total for the project area.

Ute Lady's-Tresses Orchid. Ute-lady's-tresses orchid was listed as threatened in 1992 (USFWS 1992). The species occurs in seasonally flooded riparian and subirrigated meadow habitats (USFWS 1992). In 2006, Ute ladies'-tresses orchid was found within the Roaring Fork River valley near Carbondale in Garfield County on seasonally subirrigated meadows that were dominated by herbaceous riparian species within neighboring the BLM Glenwood Springs Field Office (DeYoung 2009). However, Ute lady's- tresses orchid has not been considered "present" in the GJFO RMPPA (BLM 2009c). No plants were documented during project surveys (WestWater Engineering 2013), and the species is not expected to be present within the project area.

## BLM SENSITIVE SPECIES

The BLM (2012b; Appendix B) identified 22 species of sensitive vascular plants that are known to occur or could occur within the GJFO area (Table 3.3-7). Available information from the CNHP and records from the Colorado State University Herbarium (CSUH), the University of Colorado Herbarium (CUH), and the Rocky Mountain Herbarium (RMH), as well as geological formations present in the project area indicate that five sensitive species are possible within the project area. Possible presence is based on the species' known distributions and/or characteristic habitat associations (Table 3.3-7). Surveys for BLM sensitive plant species were conducted on BLM lands in 2013 within 100 meters of the proposed disturbance (WestWater Engineering 2013). No BLM

sensitive plants were documented. In addition, previous surveys in the project area did not document BLM-sensitive plant species (BLM 2012b).

Two species indicated in Table 3.3-7 as having the greatest potential for occurrence are the DeBeque milkvetch. Potentially suitable is present for both species, and plants of both have been documented in the project vicinity.

**Table 3.3-7**  
**BLM Sensitive Vascular Plant Species not Listed under the ESA**  
**that Could Potentially Occur in the Vicinity of the Project Area**

<b>Common Name Scientific Name</b>	<b>Habitat<sup>1</sup></b>	<b>Potential Occurrence<sup>2</sup> Nearest Record</b>
Narrowstem gilia <i>Aliciella (Gilia) stenothysra</i>	Silt, loam, gravel soils from Green River/Uinta Formation; 5,000 to 6,000 feet.	Unlikely Geologic formation not present
Jones' blue star <i>Amsonia jonesii</i>	In runoff to fed draws on (Mancos Formation) sandstone, desert to steppe, rocky gorges, canyons, 4,500 to 5,000 feet.	Unlikely 13 miles away (CNHP)
DeBeque milkvetch <i>Astragalus debequaeus</i>	Varicolored, fine to textured, seleniferous, saline soils of Wasatch Formation to Shire Member; 5,100 to 6,400 feet.	Possible Habitat present; observed in area
Horseshoe milkvetch <i>Astragalus equisolensis</i> ( <i>Astragalus desperatus</i> var. <i>neeseae</i> )	Dolores River Canyon, sagebrush, greasewood, mixed desert shrub, on Duchesne River Formation.	Unlikely <17 miles away (CSUH)
Grand Junction milkvetch <i>Astragalus linifolius</i>	Pinyon to juniper, sagebrush on Chinle, Morrison Formation; 4,800 to 6,200 feet.	Unlikely <20 miles away (CUH)
Ferron's milkvetch <i>Astragalus musiniensis</i>	Pinyon to juniper, desert shrub on shale, sandstone, or alluvium; 4,700 to 7,000 feet.	Unlikely <20 miles away (CSUH, CUH, RMH)
Naturita milkvetch <i>Astragalus naturitensis</i>	Pinyon to juniper woodlands, sandstone mesas, ledges, crevices; 5,000 to 7,000 feet.	Possible Habitat present; observed in vicinity
Fisher milkvetch <i>Astragalus piscator</i>	Sandy, gypsiferous soils in valley benches, gullied foot hills; 4,300 to 5,600 feet.	Unlikely 46 miles away (CNHP)
San Rafael milkvetch <i>Astragalus rafaensis</i>	Gullied hills, washes, talus, seleniferous clay, silt, sand; 4,400 to 6,500 feet.	Unlikely 46 miles away (CNHP)
Grand Junction suncup <i>Camissonia eastwoodiae</i>	Adobe hills, clay soil, in lower valleys, near Utah border; Mesa County and Delta County; 4,800 to 5,800 feet.	Possible 8 miles away (CNHP)
Gypsum Valley cateye <i>Cryptantha gypsophila</i>	In gypsum soils with other selenium to tolerant species (i.e., Atriplex); 5,700 to 6,400 feet.	Unlikely 42 miles away (CSUH)
Osterhout's cryptantha <i>Cryptantha (Oreocarya) osterhoutii</i>	Dry, barren sites in red to purple decomposed sandstone; 4,500 to 6,100 feet.	Possible 18 miles away (CSUH, CUH)
Kachina fleabane (daisy) <i>Erigeron kachinensis</i>	Found on saline soils in alcoves and seeps in canyon walls, Montrose County and eastern Utah; 4,800 to 5,600 feet.	Unlikely 48 miles away (CUH)
Grand buckwheat <i>Eriogonum contortum</i>	Mancos Shale badlands, shadscale, other salt desert shrubs; 4,500 to 5,100 feet.	Unlikely 9 miles away (CNHP); Geologic formation not present
Tufted green gentian (Frasera) <i>Frasera paniculata</i>	Western Mesa County; near Utah border, sandy soils in desert shrub, pinyon to juniper. 4,000 to 6,500 feet.	Unlikely 48 miles away (CUH)

<b>Common Name Scientific Name</b>	<b>Habitat<sup>1</sup></b>	<b>Potential Occurrence<sup>2</sup> Nearest Record</b>
Piceance bladderpod <i>Lesquerella parviflora</i>	Shale in Green River Formation, ledges, canyon slopes; 6,200 to 8,600 feet.	Unlikely Records <2.5 miles from project area (CUH); Geologic formation not present
Wideleaf bisquitroot (Canyonlands lomatium) <i>Lomatium latilobum</i> ( <i>Aletes latilobus</i> )	Pinyon to juniper, desert shrub, sandy soils from Entrada Formation; 5,000 to 7,000 feet.	Unlikely 19 miles away (CSUH)
Dolores River skeletonplant <i>Lygodesmia doloresensis</i>	Endemic to Dolores River Valley on benches between canyon walls and river; 4,000 to 5,500 feet.	Unlikely 10 miles away (CNHP)
Roan Cliffs blazingstar <i>Mentzelia rhizomata</i> <i>Nuttallia</i> ( <i>Mentzelia</i> ) <i>argilosa</i>	Steep talus of Green River Formation shale, Roan Cliffs in Garfield County; 5,800 to 9,000 feet.	Unlikely 10 miles away (RMH); Geologic formation not present
Eastwood monkey-flower <i>Mimulus eastwoodiae</i>	Shallow caves, seeps, in canyon walls; 4,700 to 5,800 feet.	Unlikely 39 miles away (CSUH, CUH)
Aromatic Indian breadroot <i>Pediomelum aromaticum</i>	Sandy soils, barren hills, in sagebrush, pinyon to juniper, Montrose to southern Mesa counties; 5,000 to 5,600 feet.	Possible 16 miles away (CNHP)
Cathedral Bluff (Sun-loving) meadowrue <i>Thalictrum heliophilum</i>	Sparsely vegetated, steep shale talus slopes of the Green River Formation; 6,300 to 8,800 feet.	Unlikely 5 miles away (CNHP); Geologic formation not present

#### Public Land Health Standard 4 (Special Status, Threatened, and Endangered Animal and Plant Species)

A Land Health Assessment for the DeBeque/Roan Creek landscape area, evaluated in 2004 and 2006 (BLM 2009b), indicated that there was a general lack of monitoring data needed to detect trends in rare plant populations. The Assessment did note that there was no evidence of livestock trampling. Alternatively, there was some livestock herbivory of Adobe thistle (a sensitive species at the time) and evidence that infestations of cheatgrass could affect the landscape area from meeting Standard 4 in the future. The current Assessment indicated that Standard 4 was being met (BLM 2009b).

#### Environmental Consequences

##### *Proposed Action*

The Proposed Action could affect special status plant species through one or more of the following:

1. Direct mortality of plants and/or destruction of seed banks during clearing and grading, construction, and reclamation.
2. Fragmentation and isolation of existing populations and areas of suitable habitat.
3. Damage or mortality of plants and/or seed banks due to increased off-road vehicle use in the project area.
4. Increased human access to occupied habitats and destruction of plants through illegal collection.

5. Increased populations of invasive noxious weed species that interfere with growth and survival of special status plants.
6. Damage or mortality of individual plants by dust deposited on photosynthetic surfaces during construction.
7. Changes in characteristics (shade, temperature, soil moisture, species composition, etc.) that alter suitable habitat.
8. Loss of pollinators due to habitat alteration, dust, and/or increased presence of invasive, noxious weeds.
9. Accidental release of toxic compounds during construction.

These pathways are consistent with criteria developed cooperatively by federal agencies (BLM and USFWS) to address impacts to listed plant species in Colorado. In Colorado, the USFWS and the BLM (2007) recommended avoiding surface disturbances within 100 meters (328 feet) of habitat occupied by Colorado hookless cactus and BLM sensitive species where possible and where geography and other resources allow. For all other ESA-listed threatened, endangered, proposed, and candidate plant species, including DeBeque phacelia, USFWS and BLM (2007) recommended avoiding surface disturbing activities within 200 meters (656 feet) of suitable and occupied habitat where possible and where geography and other resources allow. The same document recognized that disturbance closer than 20 meters from a listed plant could be considered an adverse effect.

More recent draft guidance for Section 7 consultations for ESA-listed plants from the USFWS (2013f) has suggested that effects from oil and gas pipeline construction to Colorado hookless cactus could extend out 150 meters, with adverse effects possible within 50 meters of proposed disturbance. For DeBeque phacelia, the USFWS (2013f) identified effects extending out to 300 meters, with adverse effects out to 100 meters from proposed pipeline construction. These draft guidelines (USFWS 2013f) are similar to information presented in the Colorado hookless cactus recovery outline (USFWS 2010a) and the final rule designating critical habitat for DeBeque phacelia (USFWS 2012). Consultation with the USFWS would consider the following criteria developed within the USFWS ESA Section 7 draft guidance in determining effects to listed plants for this Proposed Action (USFWS 2013f):

- Colorado hookless cactus: Effects to cactus could occur at distances to 150 meters from proposed disturbance, with adverse effects within 50 meters.
- DeBeque phacelia: Effects to phacelia could occur at distances to 300 meters from proposed disturbance, with adverse effects within 100 meters.

In some instances, the USFWS and the BLM (2007) have considered proposed disturbances within 20 meters of listed plants to not have an adverse effect if existing disturbance was between the Proposed Action and plants or if the listed plant was screened from proposed disturbance.

#### ESA-LISTED PLANT SPECIES

On May 29, 2014, the GJFO submitted a Biological Assessment (BA) to the USFWS Western Colorado Ecological Services Field Office requesting formal ESA consultation for the Proposed Action. Formal consultation was requested because not all potential habitat affected by the project would be surveyed (landowner denied survey access) and effects to ESA-plants are assumed on unsurveyed property. The BA described expected effects to ESA-listed species and provided conservation measures to prevent adverse effects to ESA-listed species. Site-specific minimization measures were included in the BA to avoid or minimize direct, indirect, and cumulative effects to

ESA-listed plant species. The BA reached an effects determination of “May Affect, Not Likely to Adversely Affect” for the Colorado hookless cactus and DeBeque phacelia.

**Project-specific mitigation measures presented as COA 7 in Appendix B and any other conservation measures identified by the USFWS in its Biological Opinion (BO) for the project will be attached as stipulations to the ROW grants and shall be adhered to by the operator.**

*Colorado Hookless Cactus.* Direct effects to Colorado hookless cactus could occur within 20 meters of the Proposed Action, which could result in loss or degradation of cactus populations, decreased cactus seed production, decreased recruitment, and increased occurrence of plant damage or individual mortality. Effects could include removal or crushing of individual plants during construction. Increased fugitive dust could impair photosynthesis, gas exchange, transpiration, use efficiency, leaf morphology, and stomata function (Farmer 1993, Sharifi et al. 1997 Rai et al. 2009). To minimize effects to Colorado hookless cactus in the project area, the project would not construct within 100 meters of documented Colorado hookless cactus plants between April and late May.

Indirect impacts to Colorado hookless cactus plants are expected within 150 meters of the Proposed Action (USFWS 2013f) and could occur from heavy dust created during construction and use of access roads, changes in hydrology and soil characteristics, an increase in noxious weeds and alterations of vegetation cover and species composition. Dust from construction and related traffic could also interfere with cactus reproduction by affecting pollinators during the flowering season. The project would control fugitive dust along access roads and within proposed ground-disturbance, which should minimize the effects of fugitive dust on cactus plants within the vicinity of the project.

Soil compaction within the construction ROW or DeBeque Pumping Station could result in a change in soil hydrology, possibly indirectly altering vegetation composition that might compete with the Colorado hookless cactus. Introduction or an increase in noxious weeds could alter vegetation cover and species composition, potentially out-competing the cactus. Surveys conducted in 2013 identified six weeds (Russian knapweed, hoary cress, field bindweed, chicory, Russian olive, and tamarisk) within 100 meters of documented Colorado hookless cactus plants (WestWater Engineering 2013). Prior to ground disturbance, the project would treat the weeds documented to minimize the potential to spread these weeds during construction and operation of the project. Herbicides would not be applied within 100 meters of cactus plants, unless otherwise recommended by GJFO BLM. Recent monitoring studies conducted by the Denver Botanic Gardens in the project area determined that population growth rates of Colorado hookless cactus within the vicinity of natural gas development are similar to growth rates elsewhere in the range and appears stable. However, correlations between distance from disturbance and plant size up to 100 meters from oil pads and up to 150 meters from roads have been documented. Data to determine the causation between disturbance and age structure are not conclusive (McGlaughlin and Ramp-Neale 2012).

Botanical surveys in 2013 (WestWater Engineering 2013) in the project area have documented 33 Colorado hookless cactus plants within 150 meters of the construction ROW and temporary extra workspace sites that could be affected by construction-related activities, of which four cactus plants have been identified within 50 meters of the construction ROW and temporary extra workspace sites on BLM lands (Table 3.3-8). However, disturbance associated with the Proposed Action would be no closer to the documented plants than pre-existing disturbance (reclaimed pipeline ROW) from construction of the TransColorado pipeline in 1996. No cactus plants were located during 2013 surveys within 20 meters of the project. However, surveys occurred outside the Colorado hookless cactus flowering season. Erecting temporary fencing along the edge of the ROW within 100 meters of documented cactus plants could prevent inadvertent trampling of the habitat by workers or equipment. Table 3.3-8 summarizes the number of Colorado hookless cactus plants known within 150 meters of the Proposed Action.

Approximately 65 acres within sagebrush shrubland and greasewood/sagebrush shrubland communities within 100 meters of the proposed disturbance have not been surveyed for Colorado hookless cactus, where they would be expected, because of landowner denial. It is possible that cactus plants within unsurveyed habitat could be directly or indirectly affected by the Proposed Action.

**Table 3.3-8**  
**Summary of Colorado Hookless Cactus Plants Documented during Surveys (WestWater Engineering 2013) within 150 meters of Proposed Disturbance<sup>1</sup>**

<b>Project Component</b>	<b>Number of Plants 20 m to 50 m</b>	<b>Number of Plants 50 m to 150 m</b>	<b>Total Number of Plants &lt;150 m of Proposed Action<sup>2</sup></b>
Construction ROW/Temporary Extra Workspace Sites	4	29	33
DeBeque Pumping Station	0	0	0
Proposed Action Total	4	29	33
<sup>1</sup> Colorado hookless cactus locations determined from surveys in 2013 where survey permission was granted (WestWater Engineering 2013). No plants documented within 20 meters of proposed disturbance.			
<sup>2</sup> Proposed Action considers all cactus plants within 150 meters of the proposed development.			

DeBeque Phacelia. Direct and indirect effects to DeBeque phacelia habitat and/or plants would be expected at distances up to 300 meters, similar to effects discussed above for Colorado hookless cactus. Surface-disturbing activities related to the Proposed Action within suitable habitat could directly impact DeBeque phacelia by killing plants, removing dormant seeds in the ground, and modifying habitat so that it was no longer suitable for DeBeque phacelia to grow. Heavy dust created during construction and use of access roads from construction traffic, changes in hydrology and soil characteristics, increased noxious weed infestations, and alterations of vegetation cover and species composition could also affect DeBeque phacelia. Due to the life history of the plant, effects from fugitive dust would be more significant if DeBeque phacelia are present and flowering (April through late June). project design features (Black Hills et al. 2013), including control of fugitive dust (with water) on existing access roads and on disturbed surfaces during construction, and construction of the project within 200 meters of DeBeque suitable habitat outside the flowering period (April through June) would minimize effects to DeBeque phacelia habitat and/or plants, if present.

Surveys within the project area, where permitted, identified one area (0.15 acre) of marginally suitable to unsuitable DeBeque phacelia habitat within 200 meters of proposed disturbance and within Pyramid Rock critical habitat Unit 2 that could be affected by construction of the Proposed Action. Erecting temporary fencing along the edge of the construction ROW within 200 meters of the potential habitat could prevent inadvertent trampling of the habitat by workers or equipment. No suitable habitat was observed within 100 meters of the project, where surveys occurred. The project would control noxious weeds documented within 200 meters of delineated phacelia habitat (Russian knapweed, hoary cress, field bindweed, and Russian olive) to minimize the spread or increase in noxious weeds; herbicides would not be used unless otherwise approved by GJFO BLM.

Approximately 63.7 acres within the Atwell Gulch member of the Wasatch Formation (including 100 meter buffer of geologic substrate) that occur within 200 meters of the project have not been surveyed (13.7 acres occur within the delineated Atwell Gulch member). Only 1.06 acres of habitat

within 100 meters of Atwell Gulch member would be directly affected by the project (all located outside designated critical habitat), of which approximately 0.99 acre would potentially provide habitat suitable for phacelia since 0.07 acre has been previously disturbed. It is possible that potential DeBeque phacelia suitable habitat and/or plants that occur within unsurveyed habitat could be directly or indirectly affected by the Proposed Action.

*Critical Habitat.* Approximately 31.89 acres of surface disturbance would occur within the Pyramid Rock Unit (Unit 2), of which 11.11 acres would be affected during construction of the proposed pipelines and 20.78 acres would be affected during construction of the DeBeque Pumping Station. Critical habitat that would be affected by the project does not occur within or within 100 meters of geology associated with DeBeque phacelia (Atwell Gulch or Shire members of the Wasatch Formation). Surveys for DeBeque phacelia habitat have occurred within approximately 22.87 acres of designated critical habitat that would be directly affected by the project. However, no suitable habitat was observed. Although the Proposed Action would remove 9.02 acres within designated critical habitat that has not been surveyed, it is expected that PCEs, as described above, would not be directly affected by construction of the project because geology associated with DeBeque phacelia would not be affected within designated critical habitat Unit 2 (Pyramid Rock).

#### BLM SENSITIVE PLANT SPECIES

No sensitive vascular plants included in Table 3.3-7 were documented during surveys on BLM lands (WestWater Engineering 2013). Therefore, effects from the project to BLM-sensitive plant species are not expected.

#### *No Action Alternative*

This alternative would result in no effects from the Proposed Action to endangered, threatened, proposed, or candidate threatened or endangered plants or to BLM sensitive plants on BLM lands from construction or operation of the Proposed Action. Ongoing activities in the project area would continue.

#### Finding on the Public Land Health Standard 4 (Special Status, Threatened and Endangered Animal and Plant Species)

The Proposed Action has the potential to contribute to the DeBeque/Roan Creek landscape not meeting Land Health Standard 4 because new surface disturbances caused by the Proposed Action are potential areas for invasion by noxious weeds, including cheatgrass. With strict reclamation and adherence to the Noxious and Invasive Weed Management Plan for Oil and Gas Operators (BLM 2007a), the Proposed Action may not further degrade plant communities in the Assessment area.

### **3.3.6 Migratory Birds (includes a finding on Standard 3)**

#### Current Conditions

*Birds of Conservation Concern.* The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties for the protection of migratory birds. Executive Order (EO) 13186, issued in 2001, directed actions that would further implement the MBTA. As required by MBTA and EO 13186, the BLM signed a Memorandum of Understanding (MOU) with the USFWS in 2010 which is intended to strengthen migratory bird conservation efforts by identifying and implementing strategies to promote conservation and reduce or eliminate adverse impacts on migratory birds. At the project level, the BLM should:

- Evaluate the effects of their actions on migratory birds and identify where take reasonably attributable to those actions might have a measureable negative effect on migratory bird populations.
- Develop conservation measures and monitoring of the effectiveness of measures taken to minimize, reduce, or avoid unintentional take.
- Consider, to the extent practicable, approaches for identifying and minimizing any “take” that is incidental to otherwise lawful activities, including:
  - altering the season of activities to minimize disturbances during the breeding season
  - retaining the breeding site integrity, especially of sites with long histories of use.
  - coordinating with the USFWS when planning projects likely to have a negative effect on migratory bird populations
  - developing cooperative approaches to minimize negative impacts and maximize benefits to migratory birds

The focus of the BLM’s conservation efforts are on migratory species and some non-migratory game bird species that are listed as Birds of Conservation Concern (BCC). BCC species have been identified by the USFWS (2008b) for different Bird Conservation Regions (BCR) in the United States. The project area is in BCR 16, the Southern Rockies/Colorado Plateau. BCC species within BCR 16, which probably occur within the project area include: gray vireo, pinyon jay, juniper titmouse, and Brewer’s sparrow. Pinyon jays, gray vireos, and juniper titmouse likely nest in pinyon-juniper woodlands within or near the project area. Estimates of population trends for pinyon jay and Brewer’s sparrow within BCR 16 (Sauer et al. 2011) indicate both species declined between 1981 and 2010. Local populations of pinyon jays and Brewer’s sparrows have been declining over the past 20 years (Table 3.3-9).

Data compiled for 13 National Biological Survey Breeding Bird Survey (BBS - Sauer et al. 2011) routes within 50 miles from the general project area reveal that populations for 12 migratory bird species appear to be increasing, but populations for 28 species have been decreasing during the period 1992 to 2011. In addition to the three BCC species with declining local populations, other sagebrush obligate species or species associated with sagebrush steppe and pinyon-juniper woodlands are apparently declining within the local region including red-tailed hawk, common nighthawk, white-throated swift, western wood-pewee, pinyon jay, black-billed magpie, rock wren, mountain bluebird, hermit thrush, sage thrasher, chipping sparrow, vesper sparrow, Lazuli bunting, Brewer’s blackbird, and brown-headed cowbird.

The woodlands, shrublands, and mixed grasslands within the project area provide nesting and foraging habitats for migratory and resident bird species at various times of year. No BCC birds or nests were observed during surveys conducted by WestWater Engineering (2013), but it is likely that these species would nest near or within the project area.

**Table 3.3-9**  
**Birds of Conservation Concern within Bird Conservation Region 16**  
**(Southern Rockies/Colorado Plateau) that Occur or Potentially Occur in the Project Area**

<b>Common Name Scientific Name</b>	<b>Habitat <sup>1</sup></b>	<b>Present Onsite <sup>2</sup></b>	<b>BCR Trend <sup>3</sup> 1981 to 2010</b>	<b>Local Trend <sup>4</sup> 1992 to 2011</b>
Gray vireo <i>Vireo vicinior</i>	Nests in open pinyon-juniper stands with mountain mahogany, deciduous shrub interspersed.	Yes	No Trend	Insufficient Data
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Nest in pinyon and/or juniper woodlands, feed/cache pinyon nuts, juniper berries.	Yes	Decreasing	Decreasing
Juniper titmouse <i>Baeolophus griseus</i>	Nests in pinyon and/or juniper open or dense woodlands, often intermixed with Gambel oak.	Yes	No Trend	Insufficient Data
Brewer's sparrow <i>Spizella breweri</i>	Nests in sagebrush, occasionally greasewood, rabbitbrush in desert valleys.	Yes	Decreasing	Decreasing
<sup>1</sup> Righter et al. 2004. <sup>2</sup> WestWater Engineering 2013. <sup>3</sup> Sauer et al. 2011. <sup>4</sup> Linear trends of birds counted per route averaged for data available on 12 Breeding Bird Survey routes within 50 miles surrounding the general project area in Colorado and Utah between 1992 and 2011.				

**Raptors.** Several raptor species may nest, reside, forage, or pass through the project area. Portions of the juniper woodlands, cliffs, and riparian habitat within the project area are suitable for raptor nesting. Raptor species which may occur in the project area are listed in Table 3.3-10, with species that are BCC (USFWS 2008b) noted.

**Table 3.3-10**  
**Raptor Species that May Be Present in the Project Area**

<b>Common Name</b>	<b>Scientific Name</b>	<b>BCC?</b>	<b>Habitat Preferences</b>
American Kestrel	<i>Falco sparverius</i>	N	Coniferous and deciduous forests and open terrain with suitable perches. Nests in cavities in trees, cliffs, and buildings.
Cooper's Hawk	<i>Accipiter cooperii</i>	N	Cottonwood riparian to spruce/fir forests, including pinyon-juniper woodlands. Nests most frequently in pines and aspen.
Golden Eagle	<i>Aquila chrysaetos</i>	Y	Vast open areas such as sagebrush, grasslands, and farmland. Most often nest in cliff habitat, but also in trees.
Great Horned Owl	<i>Bubo virginianus</i>	N	Occupies diverse habitats including riparian, deciduous, and coniferous forests with adjacent open terrain for hunting.
Long-eared Owl	<i>Asio otus</i>	N	Occupies mixed shrublands near forests. Nests and roost in sites in dense cottonwoods, willows, scrub oak, junipers and dense forest of mixed conifers and aspens.

<b>Common Name</b>	<b>Scientific Name</b>	<b>BCC?</b>	<b>Habitat Preferences</b>
Northern Harrier	<i>Circus cyaneus</i>	N	Grassland, shrubland, agricultural areas, and marshes. Nests in areas with abundant cover (e.g., tall reeds, cattails, grasses) in grasslands and marshes. Also known to nest in high-elevation sagebrush.
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	N	Mountain and foothill forests and canyon country. Significant use of pinyon-juniper woodland and Douglas- fir.
Peregrine Falcon	<i>Falco peregrinus</i>	Y	Nests on cliffs in foothills and mountains; hunts over pinyon/juniper habitats in western Colorado
Prairie Falcon	<i>Falco mexicanus</i>	Y	Grasslands, shrublands, and alpine tundra. Nests on cliffs or bluffs in open areas.
Red-tailed Hawk	<i>Buteo jamaicensis</i>	N	Diverse habitats including grasslands, pinyon-juniper woodlands, and deciduous, coniferous, and riparian forests. Nests in mature trees (especially cottonwood, aspen, and pines) and on cliffs and utility poles.
Swainson's Hawk	<i>Buteo swainsoni</i>	N	Arid grassland, desert, and agricultural areas, shrublands, and riparian forests. Nests in trees in or near open areas.
Western Screech-owl	<i>Megascops kennicottii</i>	N	Primarily riparian woodland, also found in pinyon-juniper woodlands.

### Public Land Health Standard 3 (Migratory Birds)

Land Health Assessments for the DeBeque/Roan Creek landscape area were evaluated in 2004 and 2006 (BLM 2009b). Approximately 17 percent of the area evaluated was not meeting Standard 3, primarily due to invasive cheatgrass and low abundance of perennial plant species. Poorly revegetated surfaces disturbed by oil and gas activities contributed to not meeting the standard. The evaluation concluded that wildlife habitat was degraded and should be improved through protections of soils, restoration of native vegetation and prevention of further weed infestations (BLM 2009b, Table 3-1).

### Environmental Consequences

#### *Proposed Action*

***Birds of Conservation Concern.*** The USFWS has primary responsibility for administering the MBTA, which prohibits taking, killing, or possessing migratory birds, their parts (feathers, talons), nests, or eggs. Executive Order 13186 directed federal agencies to avoid take under the MBTA, whether intentional or unintentional (with BCC as priorities), and implementing conservation measures to restore and enhance habitat for migratory birds, including the development of surface operating standards for oil and gas developments, management of invasive species to benefit migratory birds, minimizing/preventing pollution, or detrimental alteration of habitats utilized by migratory birds, among other commitments.

As a BMP pursuant to implementing Executive Order 13186, BLM IM 2008-050 (BLM 2007b) suggested that impacts to nesting migratory birds could be minimized or avoided by imposing a timing limitation on use authorizations to mitigate vegetative disturbing activities during the primary portion of the nesting season (May 15 to July 15) when most migratory birds nest, but cautioned that dates should be adjusted for the timing or intensity of breeding activity by BCC and migratory bird species affected by a project and species' environmental conditions (BLM 2007b). Some BCC

observed within the region are known to fledge young after July 15. In Colorado, young gray vireos fledge by July 27, Brewer's sparrows fledge by August 6, juniper titmice fledge by August 10, and pinyon jays fledge by August 12. However, over half of migratory bird species that could nest within the project area could fledge by July 15 (nest chronology data in Kingery 1998).

Construction during the core nesting season (May 15 through July 15) could result in nest abandonment, displacement of birds, and possible mortality of nestlings. Nest abandonment by ground-nesting passerines and raptors due to human disturbance is more likely early in the nesting season (egg laying, incubation) than late in the season (Romin and Muck 2002; Winter et al. 2003), although many species will re-nest at alternate sites if abandonment occurs early. Risk of mortality of nestlings and dependent fledglings is greater if adults abandon nests late in the season or nests are destroyed prior to fledging young, and could increase if predators are attracted to areas occupied by humans (Andren 1994, Chalfoun et al. 2002). Displacement of nesting migratory birds from adjacent nesting habitats due to noise, human activity, and dust during construction could also occur (Ingelfinger and Anderson 2004, Knick and Rotenberry 2002, Gilbert and Chalfoun 2011). However, displacement/avoidance of these habitats is expected to be short-term with birds returning once equipment has left the area.

Construction of the Proposed Action would remove potentially suitable migratory bird nesting habitat including shrubland habitat. Sites impacted by brush removal prior to the nesting season (prior to May 15) would discourage use of the project area for nesting, thereby reducing breeding season impacts. Conducting surveys on proposed disturbance sites within 7 to 10 days prior to vegetation clearing during the core nesting season would minimize potential take under the MBTA, although impacts to nesting migratory birds could occur in adjacent habitats. If no nests or adult migratory birds are found within the surveyed area, vegetation clearing would be initiated. If active nests and/or adults displaying courtship and/or territorial behaviors are observed, vegetation clearing would not be initiated until after July 15.

Noise produced by machinery and other human activities may interfere with bird vocalizations used for territory establishment, mate attraction and selection, food begging, and predator alarms (Marler 2004). To minimize effects to documented nesting BCC bird species, vegetation clearing and pipeline construction in those areas would occur prior to May 15 or after July 15, effectively avoiding the core migratory bird nesting period for most species. The Proposed Action may affect late or second nesting attempts, but in general would have little direct influence on nesting success.

The Proposed Action could have a minor effect on bird species through degradation of nesting habitats due to noxious weed infestations that could alter native vegetation cover and plant species composition. Implementation of the Invasive Weed Management Plan for Oil and Gas Operators (BLM 2007a) should minimize weed infestations.

The Proposed Action would affect 36.34 acres of potentially suitable migratory bird nesting habitat (woodlands, shrublands—disturbed, grasslands, riparian areas) (Table 3.3-2). These habitats could potentially support nesting by BCC (e.g., pinyon jay, gray vireo, Brewer's sparrow, and juniper titmouse) and other migratory birds. However, amount of habitat would not be expected to support more than a few pairs total. Successful revegetation could occur within three growing seasons of construction, except in areas of woody or shrub vegetation, which could provide nesting and/or foraging habitat for some passerine migratory species. However, reestablishment of sagebrush and forested habitat would take much longer. Under natural succession regimes it would take at least 20 years to replace a mature sagebrush stand and 100 to 300 years to replace mature pinyon-juniper habitat. Brush-hogging techniques are proposed to leave big sagebrush, greasewood, rabbitbrush and other shrubs roots systems intact and to promote revegetation and increase restoration of potential migratory bird nesting habitat.

**Raptors.** Approximately 75 acres of potential woodland habitat were surveyed on BLM lands for raptor habitat (WestWater Engineering 2013). Of these 75 acres, less than 10 acres were considered suitable raptor habitat. (This 10-acre area is no longer within 0.25 mile of the project due to a pipeline alignment change). The majority of the juniper trees within 0.25 mile of the planned disturbance on BLM lands were short and widely spaced. The woodland areas considered suitable had less scattered, larger trees. A few of the cottonwoods along Roan Creek were also considered suitable raptor woodland habitat. Approximately 5.5 acres of suitable raptor cliff habitat was observed within 0.5 mile of the planned disturbance on BLM lands, but no nests were identified. The former Wasserman property (now owned by Black Hills) has approximately 12 acres of short, widely spaced juniper trees within 0.25 mile of the proposed disturbance that were considered unsuitable raptor habitat. The Red Rock property and BLM property were surveyed in 2012 (WestWater Engineering 2012); suitable raptor habitat was not observed. Most of the private lands were not surveyed. However, based on aerial photography and observations made from BLM lands and public access roads, approximately 13 acres of suitable raptor woodland habitat may be present along Roan Creek within 0.25 mile of the proposed disturbance.

Bald eagle winter range exists in the riparian corridor along the Roan Creek adjacent to the project area. Aerial photographs of the project area show that the alignment is in pinyon-juniper woodland and does not impact the riparian habitat associated with Roan Creek.

The BLM (2011) has draft temporal and spatial buffer recommendations applicable to other raptor species observed or likely to occur within the project area. These would be adhered to if any nests are identified within the project area or 0.5 mile buffer zone (Table 3.3-11).

**Table 3.3-11**  
**Temporal and Spatial Buffers Recommended by**  
**the BLM for Raptor Species Known or Likely to Occur within the Project Area**

<b><i>Raptor Species</i></b>	<b><i>Breeding Season Timing Buffer</i></b>	<b><i>Breeding Season Spatial Buffer (mile)</i></b>
Bald Eagle	November 15 - July 31	0.50
Burrowing Owl	March 15 - August 15	0.25
Cooper's Hawk	April 1 - August 15	0.25
Ferruginous Hawk	February 1- August 15	0.50
Golden Eagle	December 15 - July 15	0.50
Great Horned Owl	February 1 - August 15	0.25
Long-eared Owl <sup>1</sup>	February 1 to August 15	0.25
Peregrine Falcon	March 15 – July 31	0.50
Prairie Falcon	March 15 - July 31	0.50
Red-tailed Hawk	February 15 - August15	0.25
<sup>1</sup> Buffers based on Romin and Muck 2002.		

Protective design features and mitigation measures to minimize impacts to habitats, disruption of wildlife behaviors, and direct adverse impacts are presented in Appendix A. These would be attached as stipulations to the ROW Grants. Based on these protections, the limited area, and the limited construction period for the project, the Proposed Action is not expected to result in significant adverse impacts to migratory birds.

### *No Action Alternative*

Under the No Action Alternative, impacts to migratory birds associated with the Proposed Action would not be caused because the Proposed Action would not be built. Ongoing activities in the project area would continue.

### Finding on the Public Land Health Standard 3 (Migratory Birds)

The Proposed Action has the potential to further contribute to the DeBeque/Roan Creek landscape's failure to meet Land Health Standard 3 because new surface disturbance can lead to invasion by noxious weeds, including cheatgrass. With adherence to the BLM's Noxious and Invasive Weed Management Plan for Oil and Gas Operators, the Proposed Action may not further degrade plant communities in the project area.

## **3.3.7 Wildlife (Aquatic and Terrestrial) (includes a finding on Standard 3)**

### Current Conditions

Large Ungulates. The project area coincides with mule deer population D-41 and elk population E-10. CPW manages these populations within Game Management Unit (GMU) 31. Mule deer, elk, mountain lions, and black bears are harvested annually in GMU 31. Harvest data have been reported by CPW (2012b and 2012c) from 2002 to 2011 but there have been no overall trends in total harvest or hunter effort for the four species.

Estimates for the mule deer population indicate it has declined during the period from 2004 through 2011. Mule deer population D-41 was 11,720 deer in 2004 and 8,120 in 2011. The elk population has increased during the same time period. Elk population in E-10 was 8,840 in 2004 and 11,980 in 2011.

CPW (2012d) has defined expected distributions of big game on winter ranges under different winter conditions:

- Winter range is utilized by 90 percent of the population during an average five out of ten winters.
- Winter concentration areas are smaller areas within winter range where animal densities are (at least) 200 percent greater than the density on surrounding winter range during an average five of ten winters.
- Severe winter ranges are subareas within winter range where wintering animals are highly concentrated (severe winter ranges support 90 percent of the population) during the most severe two out of ten winters (when snowpack depths are greatest and/or temperatures are lowest).

Mule deer are likely to be present on winter range from the first heavy snowfall (November or December) to spring green-up (CPW 2011b), usually April to May. In addition, CPW (2012d) has defined mule deer critical winter range as parts of the winter range that are of highest priority for protection from disturbance and which are critical to sustain mule deer populations. Critical winter ranges are generally combinations of winter concentration areas and severe winter ranges. All of the project area coincides with mule deer winter range, winter concentration area, and severe winter range, as well as with mule deer overall range.

Rocky Mountain bighorn sheep are present in the Main Canyon GMU (S75), which encompasses the project area. Bighorn sheep overall range has been classified to the immediate west of the project area. The project area also coincides with habitats utilized by black bears year-round (black bear overall range) and mountain lion overall range. On average, six mountain lions have been harvested annually in GMU 31 since 2002 (CPW 2012c). There is an area of mountain lion conflict with humans recorded in the north end of the project area.

Small Game/Upland Game. Small game animals include a variety of mammal and bird species. Harvest is compiled by county rather than by GMU. During the 2010/2011 harvest year, eight small game species were harvested in Mesa and Garfield counties, of which four of the species are likely to occur in the project area: cottontails (desert cottontail and mountain cottontail), coyote, Gambel's quail, and mourning dove.

Turkey overall habitat has been identified in the northern portion of the project area. Turkeys are generally associated with stands of Gambel oak shrublands, pinyon-juniper woodlands, and riparian forests. During spring 2011, 122 turkeys were harvested in Mesa County.

White-tail prairie dog overall range is present within the northern end of the project area. On July 11, 2002, the USFWS was petitioned to list the white-tailed prairie dog under the ESA. However, at that time the White-tailed Prairie Dog Working Group did not believe listing the white-tailed prairie dog as threatened was justified (Seglund et al. 2006). Neither white-tailed prairie dogs nor their sign has been observed in the project area.

Nongame Wildlife. Species presence or sign that were observed during field surveys by WestWater Engineering (2013) include: desert cottontail, coyote, and black bear. Elk, mule deer, mountain lion, gray fox, red fox, black-tailed jackrabbit, and raccoon are probable inhabitants of the area, but no sign was observed. A variety of other small mammal species may be present, including desert woodrat, rock squirrel, golden mantled ground squirrel, and several species of mice (Armstrong et al. 2011). Species of bats, other than BLM sensitive species, that may be present in the rock outcrops and cliff faces include Yuma myotis, long-legged myotis, California myotis, western small-footed myotis, and little brown myotis (Armstrong et al. 2011). No bats were observed during the surveys, although no bat-specific surveys were conducted.

Fish and Other Aquatic Species. Native fish species sampled in the Colorado River at Cameo, downstream from Roan Creek (Deacon and Mize 1997), include mottled sculpin, white sucker, bluehead sucker, flannelmouth sucker, roundtail chub, speckled dace, and four introduced species: common carp, green sunfish, largemouth bass, and brown trout. Another species, the mountain whitefish of the salmonid family, has been introduced into the region but is indigenous in the Yampa and White River drainages. All of the native fish species potentially present in the project area spawn during spring (Woodling 1985) when flows in the creeks are highest.

Brook trout and rainbow trout are present in Roan Creek, which is crossed by CR 200. Brook trout and rainbow trout were introduced in the 1880s (Woodling 1985). The roundtail chub, bluehead sucker, and flannelmouth sucker might occur in lower portions of Roan Creek given their presence in Colorado River. All three species are declining throughout their ranges and are the focus of a multi-state conservation strategy to minimize threats to the species and habitats (Karpowitz 2006).

#### Public Land Health Standard 3 (Terrestrial Wildlife)

Land Health Assessment of the Roan Creek landscape area was evaluated in 2004 and 2006 (BLM 2009b). Approximately 17 percent of the area evaluated was not meeting Standard 3, primarily due to invasive cheatgrass and low abundance of perennial plant species. Poorly revegetated surfaces

disturbed by oil and gas activities contributed to not meeting the standard. The evaluation concluded that wildlife habitat was degraded and should be improved through protections of soils, restoration of native vegetation and prevention of further weed infestations (BLM 2009b, Table 3-1).

### Environmental Consequences

#### *Proposed Action*

Construction activities would temporarily displace big game animals from active construction areas and would result in the temporary loss of forage of 36.34 acres (Section 3.3.2/Vegetation). The narrow, linear nature of the proposed disturbance would lead to minimal forage loss (and subsequent fragmentation) for big game, depending on the success of the reclamation efforts. If the disturbed area does not completely recover to native forage, and non-native weed species invade, then the forage loss over the long-term could be moderate in scale. Following reclamation and departure of work crews from the area, big game animals would return to the area. Effects to big game would be minimized by following the BLM Standard COAs for big game winter range timing limitations.

Game and Nongame Species. Construction and operation of the Proposed Action could directly and/or indirectly affect terrestrial wildlife present in the project area in one or more of the following ways:

- Direct mortality by vehicles during construction and operation of the project.
- Removal and alteration of vegetation composition and structure of existing habitats, making them less functional for wildlife.
- Decreased habitat use proximate to the project components (within a zone of effect) caused by displacement of animals to alternative habitats.
- Increased poaching and increased wildlife-human conflicts as a result of increased vehicles and human presence.

Project-related traffic could result in direct wildlife mortalities, especially for mammals and reptiles. Species most susceptible to vehicle-related mortality include those that are inconspicuous (lizards, snakes, and small mammals), those with limited mobility, burrowing species (mice and voles), wildlife with behavioral activity patterns (i.e., nocturnal activity) making them vulnerable, and birds that may get flushed by traffic (Leedy 1975, Bennett 1991, Forman and Alexander 1998). Not exceeding 30 mph where there is no posted slower speed limit would reduce the potential for vehicle collisions with terrestrial wildlife.

Habitat loss and alteration would occur during construction, temporarily removing habitats used by wildlife. Non-game wildlife species would potentially be displaced from habitats that are cleared of vegetation. However, displacement should be a short-term effect when related to noise and human presence during construction.

Noxious and other invasive weeds can interfere with reestablishment of native vegetation species and many weeds are unpalatable to wildlife (Whitson, et al. 1996). Successful restoration of vegetated seasonal ranges would provide more suitable habitat, especially on previously disturbed lands. Full restoration of shrub-dominated habitats would occur over the long-term.

An increase in human presence during construction of the pipelines could result in additional bear-human conflicts. Implementation of measures in CPW's Bear Aware Program would minimize human-bear conflicts.

Protective design features and mitigation measures to minimize impacts to habitats, disruption of wildlife behaviors, and direct adverse impacts are presented in Appendix A. These would be attached as stipulations to the ROW Grants. Based on these protections, the limited area, and the limited construction period for the project, the Proposed Action is not expected to result in significant adverse impacts to aquatic and terrestrial wildlife.

#### *No Action Alternative*

Under the No Action Alternative, impacts to wildlife associated with the Proposed Action would not be caused because the Proposed Action would not be built. Ongoing activities in the project area would continue.

#### Finding on the Public Land Health Standard 3 (Terrestrial Wildlife)

With adherence to BLM's Noxious and Invasive Weed Management Plan for Oil and Gas Operators (BLM 2007a), the Proposed Action would not be expected to contribute to further degradation of the Roan Creek landscape and its failure to meet Land Health Standard 3.

### **3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT**

#### **3.4.1 Cultural Resources**

##### Current Conditions

The BLM manages cultural resources on public lands in accordance with the Antiquities Act of 1906, National Historic Preservation Act (NHPA) of 1966, Native American Graves Protection and Repatriation Act of 1990, the Archaeological Resources Protection Act of 1979, and various other laws and Executive Orders. The management process is also governed by the Colorado BLM's Protocol with the State Historic Preservation Officer (SHPO), implementing the BLM's National Programmatic Agreement with the Advisory Council on Historic Preservation. Section 106 of the NHPA applies to consideration of the presence of and effect to cultural resources on both public and private lands in the area of potential effect (APE).

Grand River Institute conducted a file search and literature reviews through the GJFO and the Colorado Historical Society Office of Archaeology and Historic Preservation on-line database. These searches provide an overview of the existing known cultural resources in the vicinity of the APE. Though two previous cultural inventories (MC.LM.R59 and ME.LM.NR2) intersected portions of the project area and numerous prehistoric and historic sites were identified within a mile of the project area, no cultural resources have been previously documented within the area of study.

In the greater region encompassing the project area, cultural resources span about 12,000 years and represent use of Paleo-Indian, Archaic, Formative, Proto-historic, and Historic populations. The region contains prehistoric and historic sites and traditional cultural places.

In addition to the literature search, GRI completed an intensive Class III cultural resource inventory in 2013 of the APE of the Proposed Action, as defined in the NHPA. An intensive (Class III) cultural resource survey of private (where landowner access was granted) and all federal lands for the proposed pipeline route was conducted by walking zigzag transects spaced at approximately 15-

meter intervals centered on the staked pipeline to cover corridors 60 meters (200 feet) wide by 740 meters (2,425 feet) in total length. Regarding the temporary extra workspace sites, the majority of the proposed disturbance area is contained within the survey corridor and only two small areas required additional survey. The remainder of the pipeline corridor that was not surveyed on private land where access was denied was researched and evaluated through a Class I cultural resource overview also conducted by GRI in 2014.

As a result of this project specific inventory, eight resources were newly recorded. Two new segments of the previously documented Reservoir Ditch were identified, as well as a segment of a historic road, and two prehistoric thermal features. Four of these resources were determined to be historic properties and eligible for listing on the National Register of Historic Places (NRHP).

### Environmental Consequences

#### *Proposed Action*

As stated above, a number of cultural resources in the project area were identified as eligible or potentially eligible for the NRHP. As portions of those historic properties were in the project APE, the BLM believes that this proposed project has the potential to “adversely affect” several historic properties. The BLM therefore began formal consultation with the Colorado State Historic Preservation Officer (SHPO) with regard to site mitigation and Treatment Plan. Consultation with the SHPO (dated June 25, 2014) resulted in concurrence that the data recovery proposed by the BLM is an acceptable mitigation for the potential adverse effects of this project.

As stated above, a number of cultural resources in the project area were identified as eligible or potentially eligible for the NRHP. As portions of those historic properties were in the project APE, the BLM believes that this proposed project has the potential to “adversely affect” several historic properties. The BLM therefore began formal consultation with the Colorado State Historic Preservation Officer (SHPO) with regard to site mitigation and Treatment Plan. Consultation with the SHPO resulted in [to be completed upon receipt of SHPO response].

Direct impacts of construction have the potential to irreparably damage or destroy surface and subsurface culturally sensitive sites. Impacts that affect the physical setting could result in a loss of characteristics that make a historic property or cultural district significant. Additional, currently unidentified culturally sensitive or significant locations may also exist in the project area.

Avoidance is recommended for the two isolated prehistoric thermal features identified during field surveys. If avoidance of these two prehistoric sites is not possible, impacts will be mitigated through data recovery. Although the pipeline ROW crosses or intersects two of the eligible linear resources (5ME17577 and 5ME19702), the segment of the historic road (5ME19702.1) being crossed is non-contributing to the linear resources’ overall eligibility and no mitigation is necessary. The two segments of the Reservoir Ditch (5ME17577.3 and 5ME17577.4) being affected by the current project are considered contributing to the linear resources’ overall eligibility and mitigation is required.

Protective design and mitigation measures to be attached as stipulations to the ROW Grants are included in Appendix B. Based on those measures and the impact analysis above, no significant unmitigated impacts to cultural resources are anticipated.

### *No Action Alternative*

Under the No Action Alternative, anticipated and unanticipated impacts to cultural resources associated with the Proposed Action would not occur because the Proposed Action would not be built. However, ongoing activities in the project area would continue.

## **3.4.2 Paleontological Resources**

### Current Conditions

Paleontological resources include the remains or traces of any prehistoric organism preserved by natural processes in the earth's crust. The BLM classifies geologic formations to indicate the likelihood of significant fossil occurrence (usually vertebrate fossils of scientific interest) according to the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (BLM 2007c). These classifications, Classes 1 to 5, determine the procedures to be followed prior to granting a paleontological clearance to proceed with a project.

The Proposed Action borders areas underlain by the Wasatch Formation. The Wasatch Formation is known to yield fossil vertebrate remains, tracks and traces, invertebrates, and plants throughout the Rocky Mountain region. Because the Wasatch Formation is known to have a high to very high potential to yield scientifically significant fossils, it is considered to be Class 4 or 5, depending on bedrock exposure. See Map 3.4-1.

The BLM manages paleontological resources for their scientific, educational, and recreational values in compliance with the Paleontological Resources Preservation Act (PRPA) of 2009. The PRPA affirms the authority for many policies the BLM has for managing resources, such as issuing permits for collecting and curating paleontological resources and confidentiality of their locations. The law also defines prohibited acts, such as damaging or defacing paleontological resources and establishes both criminal and civil penalties.

### Environmental Consequences

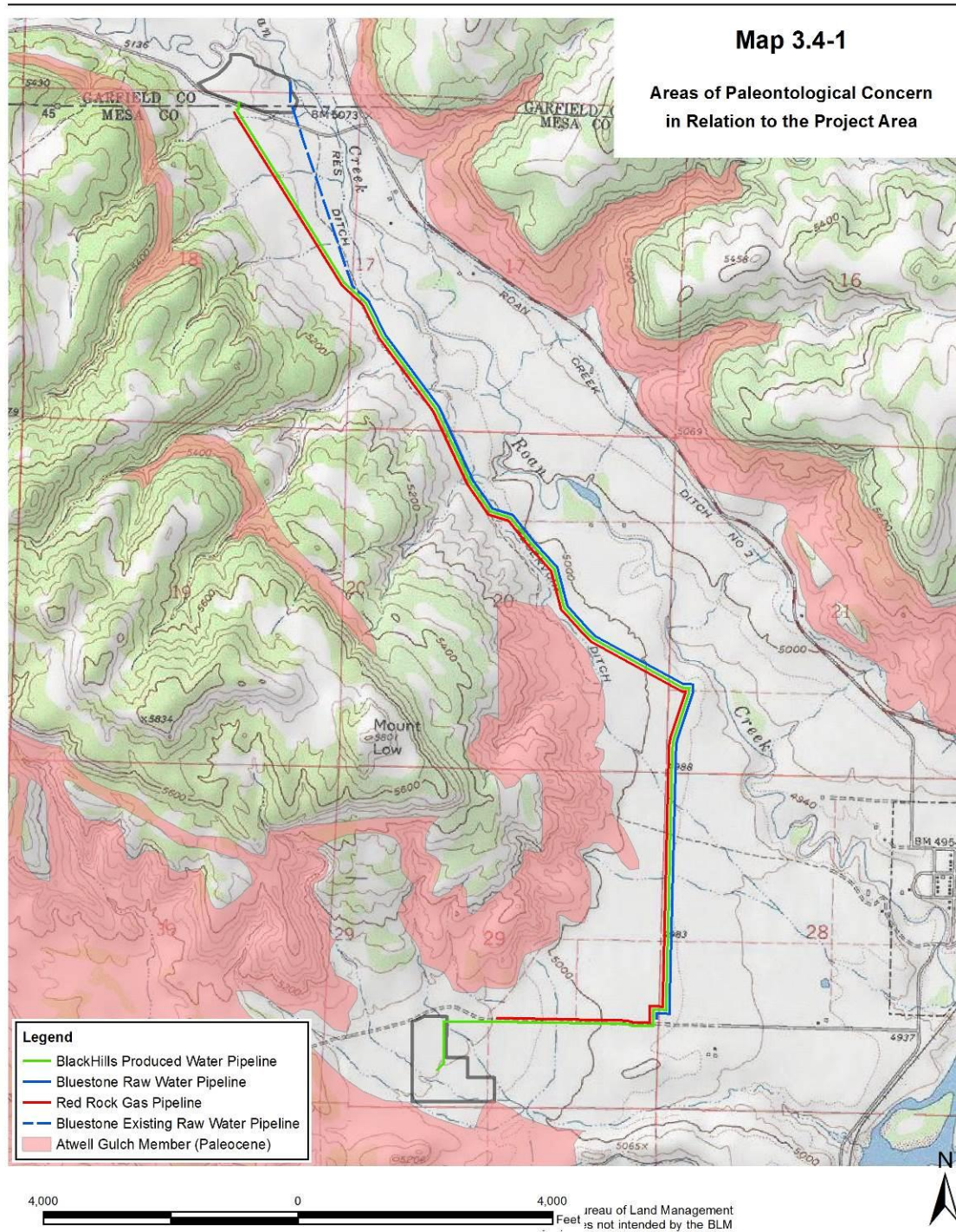
#### *Proposed Action*

The Proposed Action would not affect any known scientifically significant paleontological resources. However, the southwestern and southeastern corners of the proposed DeBeque Pumping Station lies near the edge of Wasatch Formation bedrock. A pre-construction survey to locate Wasatch Formation bedrock outcrops in relation to proposed disturbance, if practicable, would ensure that adverse impacts to fossil resources are avoided. The GJFO standard COA for paleontological resources specifies that, the event that any fossils are discovered during project activities, the activities must be suspended, the discovery protected from damage, and the BLM promptly notified.

Based on the above information and incorporation of the paleontological resources COA into the stipulations for the ROW Grants, no significant adverse impacts on paleontological resources are expected.

#### *No Action Alternative*

The DeBeque Pumping Station is already approved and would be constructed under the No Action Alternative in connection with other operations by the proponents and the Town of DeBeque. Consequently, impacts would be the same as under the Proposed Action alternative.



### **3.4.3 Tribal and Native American Religious Concerns**

#### Current Conditions

The Proposed Action is located within an area identified by the Confederated Ute Tribes as part of their ancestral homeland. Three Class III cultural resource inventories (see section 3.4.1) have been conducted in the Proposed Action's vicinity to determine if any areas were known to be culturally sensitive to Native Americans. Although two eligible prehistoric sites were located and recorded, no culturally sensitive areas or traditional cultural properties were identified or are currently known in the proposed project area.

#### Environmental Consequences

##### *Proposed Action*

The Ute Tribe of the Uintah and Ouray Bands, the Southern Ute Tribe, and the Ute Mountain Ute Tribe were notified by the GJFO cultural staff of the proposed DeBeque Pipeline Project on April 14, 2014. No responses, questions, or requests for additional information have been received as of May 16, 2014. If new data regarding cultural resources are identified or disclosed, new terms and conditions may need to be negotiated to accommodate their concerns.

Although the Proposed Action would have adverse effects to two recently identified prehistoric open campsites and two contributing segments of the historic Reservoir Ditch, mitigation of these effects would be accomplished through site-specific COAs and a Treatment Plan outlining methodology and sampling strategies for data recovery, for which concurrence from the SHPO (or other response) is pending.

No other Native American cultural sites or traditional cultural properties have been identified in the area. However, increased activity and personnel in the vicinity of the proposed project could indirectly impact currently unidentified Native American resources and could range from illegal collection to vandalism.

The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the agency Authorized Officer notified immediately (36 CFR 800.13). The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the BLM as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)).

Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act. Black Hills Exploration and Production will notify its staff and contractors of the requirement under the NHPA, that work must cease if any cultural resources are found during project operations. Besides site-specific COAs, a standard Education/Discovery COA for the protection of Native American values (Appendix A) would be attached as a stipulation to the ROW Grants. The importance of these COAs would be stressed to the operator and its contractors, including informing them of their responsibilities to protect and report any cultural resources encountered. The proponent and contractors would also be made aware of requirements under the NAGPRA.

### *No Action Alternative*

Under the No Action Alternative, unanticipated impacts to tribal and Native American Religious Concerns associated with the Proposed Action would not be caused because the Proposed Action would not be built. However, ongoing activities in the project area would continue.

Based on the above and the COAs for the protection or mitigation of cultural resources to be attached as stipulations to the ROW Grants, no significant adverse impacts on Native American concerns are anticipated.

### **3.4.4 Visual Resources**

#### Current Conditions

Visual Resource Management (VRM) is a system for evaluating and minimizing the visual impacts of surface-disturbing activities and maintaining scenic values on public lands. VRM does not apply to non-BLM land, but visual concerns may be addressed on split-estate lands with underlying Federal minerals. VRM shown for non-public lands are an indication of the visual values for those lands, and those values are protected solely by landowner discretion.

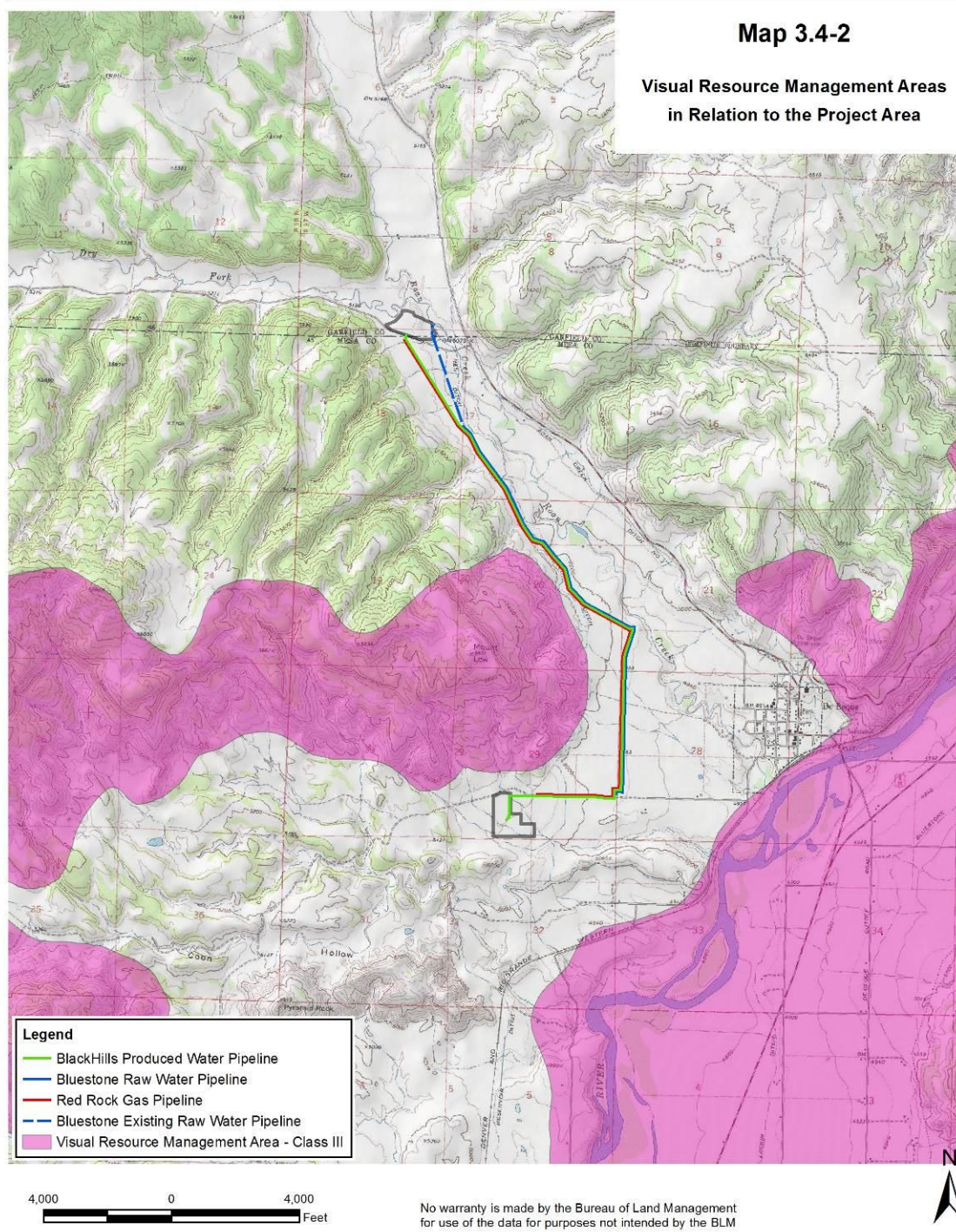
Visual resources on less than half of the public lands in the GJFO have been assigned to management classes with established objectives in the GJFO RMP (BLM 1987). These lands included Wilderness Study Areas (WSAs), highly scenic landscape features, river corridors, and scenic highway corridors where protection of visual resources was a major management concern. The Proposed Action lies in an area not assigned a management class with established objectives in the 1987 GJFO RMP (Map 3.4-2).

In 2009, a Visual Resource Inventory (VRI) was conducted for the entire GJFO in anticipation of updating the VRM classes for the GJFO RMP revision. The inventory process consisted of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these three factors, BLM lands are placed into one of four visual resource inventory classes. These inventory classes represent the relative value of the visual resources with Classes I and II being the most valued; Class III representing a moderate value; and Class IV being of least value. Inventory classes are informational and provide the baseline for considering visual values in current RMP process currently being undertaken by the GJFO for the entire planning area.

**Table 3.4-1**  
**BLM Visual Resource Management Classes and Objectives in Project Vicinity**

<b><i>VRM Class</i></b>	<b><i>Where Located</i></b>	<b><i>Visual Resource Objective</i></b>	<b><i>Relative Change Allowed</i></b>	<b><i>Relationship to the Casual Observer</i></b>
Class II	South Shale Ridge – Not in Project Area	Retain the existing character of the landscape.	Low	Activities may be visible, but should not attract attention.
Class III	Remainder of Project	Partially retain the existing character of the landscape.	Moderate	Activities may attract attention but should not dominate the view.

Based on the 2009 VRI, the portion of the Proposed Action located on BLM land lies within the Roan Creek scenic quality rating unit (SQRU) and is classified as VRI Class III. South Shale Ridge, a dominant landscape feature located approximately 300 feet west of the project area, was assigned



VRM Class III in the 1987 GJFO RMP and inventoried as VRI Class II in the 2009 VRI inventory. A portion of the Proposed Action would take place along the valley floor between the toe of South Shale Ridge west and Roan Creek. The valley floor is flat to gently rolling and is characteristic of rural agricultural/ranching land, scattered rural residences, and oil and gas development.

### Environmental Consequences

#### *Proposed Action*

In the short-term, the new pipeline ROW would attract attention but would not dominate the view of the casual observer. Construction of the Proposed Action would create contrast in the landscape due to surface disturbance, including vegetation removal, trenching, soil stockpiles, and clearing for temporary work spaces. These activities would expose bare ground and create distinct lines in the landscape. Construction of the Proposed Action would increase the presence of heavy equipment and vehicular traffic with an associated increase in fugitive dust. However, dust would be controlled along the construction ROW and access roads with water, and vehicle speeds would be limited to 15 mph along the ROW and 30 mph along the access road, which is unposted.

No aboveground facilities would be constructed on BLM lands, eliminating contrasting vertical human-caused elements in the landscape.

Overall, impacts to visual resources along the proposed alignment would be minor because it parallels an existing previously disturbed (TransColorado pipeline) ROW corridor. The three proposed pipelines would be installed concurrently within a single construction corridor, reducing the overall duration and amount of surface disturbance associated with the construction of the project. The flat to gently rolling topography in the project area would also reduce the amount of cut and fill required to construct the ROW and meet grade, thereby reducing impacts to visual quality.

Based on the above and protective or mitigation measures presented in Appendix A, the Proposed Action is not expected to have significant adverse impacts on visual resources.

#### *No Action Alternative*

Under the No Action Alternative, impacts to visual resources associated with the Proposed Action would not occur because the Proposed Action would not be constructed. However, visual impacts associated with ongoing oil and gas activities in the project area would continue.

### **3.4.5 Transportation and Access**

#### Current Conditions

Table 3.4-2 shows average daily traffic volumes on Mesa County roads and the Town of De Beque streets near the project area. The limited and dated traffic counts that are available for the Town of De Beque streets do not reflect traffic increases due to expanded energy development near De Beque in recent years.

**Table 3.4-2**  
**Traffic Volume on County Roads and Local Streets near the Project Area**

<b>Road</b>	<b>Segment</b>	<b>Year</b>	<b>Average Daily Traffic</b>
Mesa County 45 Road (Roan Creek Road) <sup>1</sup>	1,430 feet northwest of Glenwood Ave.	2011	1,520
Mesa County V.2 Road (Winter Flats Road) <sup>1</sup>	410 feet west of V.2 Road	2012	91
Mesa County 44 Road <sup>2</sup>	1,500 feet northeast of V.2 Road	2007	262
Fourth Street <sup>2</sup>	136 feet west of 45 Road	2006	1,455
<sup>1</sup> White 2012. <sup>2</sup> Town of De Beque 2009.			

Mesa County maintains 45 Road (Roan Creek Road) and X.5 Road. The Town of De Beque maintains town streets and the portion of 44 Road within the town limits.

### Environmental Consequences

#### *Proposed Action*

The Proposed Action could have direct, temporary impacts on transportation in the vicinity of and within the project area by increasing traffic volumes and have indirect impacts through increased opportunities for vehicle collisions with wildlife and other vehicles, and contributing to roadway deterioration and dust creation on unpaved roads. Transporting workers to and from worksites along the construction ROW would limit opportunities for such occurrences. Due to the project's limited timeframe, impacts to transportation would be temporary.

Based on the assumptions and traffic estimates described in Chapter 2, project-related traffic would peak at 16 vehicle round-trips per day during pipeline delivery. This traffic would include worker vans, pipe delivery and dust control trucks, and equipment supply and supervisor vehicles, and would be expected to occur along southern portions of the ROW, near the proposed DeBeque Pumping Station. Traffic accessing northern portions of the ROW would include worker vans and equipment supply and supervisor vehicles and would peak at 13 vehicles per day.

Peak project-related traffic on the Town of De Beque streets and Mesa County 44 Road and Mesa County V.2 Road would occur during pipeline delivery. During this 2 week period, peak project traffic would result in a 1 percent increase in traffic on Fourth Street compared to 2006 traffic levels, a 6 percent increase in traffic on Mesa County 44 Road compared to 2007 traffic levels, and an 18 percent increase on Mesa County V.2 Road compared to 2012 traffic levels. During the remainder of pipeline construction, peak project traffic would result in less than a 1 percent increase in traffic on Fourth Street compared to 2006 levels, a 5 percent increase in traffic on Mesa County 44 Road compared to 2007 traffic levels, and a 14 percent increase on Mesa County V.2 Road compared to 2012 traffic levels.

Worker vans would account for the majority of project traffic on Mesa County 45 Road (Roan Creek Road). Peak project-related traffic would result in a 1 percent increase in traffic on this road.

Based on the above and protective/mitigation measures presented in Appendix A, to be attached as stipulations to the ROW Grants, no significant adverse impacts on traffic and transportation are expected.

#### *No Action Alternative*

Under the No Action Alternative, impacts to or from transportation and access associated with the Proposed Action would not be caused because the Proposed Action would not be built. Ongoing activities in the project area would continue.

### **3.4.6 Wastes, Hazardous or Solid**

#### Current Conditions

Hazardous and solid wastes are not a part of the natural environment, but could be introduced as a result of implementation of the Proposed Action, as described below.

#### Environmental Consequences

##### *Proposed Action*

Pipeline construction would generate small quantities of solid wastes that would be placed in approved sanitary landfills. Construction and operation would not normally generate hazardous wastes. Fuel and petroleum products would be used by construction equipment. Any spills of these materials would be relatively small in quantity and an SPCC Plan included in the POD (Black Hills et al. 2013) would be implemented, which would dictate clean-up and reporting procedures. Impacts to surface water and groundwater resulting from spills would be minimized by conducting fueling and maintenance at least 300 feet from waterbodies and wetlands.

Based on the above and protective/mitigation measures presented in Appendix A, to be attached as stipulations to the ROW Grants, and upon adherence to the SPCC Plan, no significant adverse impacts from hazardous or solid wastes are expected. This does not apply to temporary impacts at the location of any spills or releases prior to completion of cleanup measures.

##### *No Action Alternative*

Under the No Action Alternative, effects from hazardous or solid waste associated with the Proposed Action would not be caused because the Proposed Action would not be built. Ongoing activities in the project area would continue.

### **3.5 LAND RESOURCES – PRIME OR UNIQUE FARMLANDS**

#### Current Conditions

Prime farmland soils as designated by the U.S. Department of Agriculture (USDA) are soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and that are also available for these uses. In the project area, three soil mapping units are designated prime farmland soils, if irrigated. These three mapping units include: Mapping Unit 32 (Dominguez clay loam), Mapping Unit 54 (Panitchen loam), and Mapping Unit 78 (Youngston loam).

## Environmental Consequences

### *Proposed Action*

The Proposed Action, including previously approved components on private land, would affect approximately 24.14 acres (0.66 acre on BLM lands) of soils designated as prime farmlands, if irrigated (Table 3.2-9). Approximately 8.17 acres on private lands are currently irrigated for agriculture. This disturbance would be temporary and is not expected to permanently affect agricultural activities.

### *No Action Alternative*

Under the No Action Alternative, impacts to prime farmlands associated with the Proposed Action would not be caused because the Proposed Action would not be built. Ongoing activities in the project area would continue.

## CHAPTER 4. CUMULATIVE EFFECTS

### 4.1 INTRODUCTION

Cumulative effects are defined in CEQ regulations (40 CFR 1508.7) as “...the impact on the environment that results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” Cumulative effects analyses typically encompass broader geographic areas and timeframes than analysis of direct and indirect effects. The actions and effects selected for analysis depend on access to reasonably available data.

### 4.2 ANALYSIS

The Proposed Action is located in an area analyzed for cumulative effects in the May 2013 Black Hills DeBeque Exploratory Proposal EA (DOI-BLM-CO-130-2012-0021-EA). The May 2013 EA detailed Cumulative Effects Analysis Areas (CEAAs) for each resource as well as the past, present, and reasonably foreseeable actions that were included in the individual cumulative analyses. The reader is referred to the May 2013 EA for the analysis details rather than repeating them in this EA. A summary for each affected resource specific to the Proposed Action is provided below. To provide context, Maps 4.2-1 and 4.2-2 depict the CEAAs from the May 2013 EA in relation to the Proposed Action.

Acres of surface disturbance were used as best estimates for total impacts to the human environment; the rationale being that levels of surface disturbance are among the most comprehensive and readily determined impacts and because surface disturbance results in direct and indirect effects to many analyzed resources.

#### 4.2.1 Air Quality

Cumulative air quality impacts are defined as incremental impacts from any one alternative combined with impacts from other existing or proposed air emission sources in the region. The CEAA extended 100 km from the May 2013 EA project boundary (Map 4.2-1). The contribution from short-term project construction emissions to cumulative ambient air concentrations and AQRVs, including regional haze and atmospheric deposition at the distant PSD Class I Arches and Canyonlands National Parks, would be expected to be very small given the quantified emissions presented in Section 3.2.1/Air Quality and Climate.

#### 4.2.2 Soil Resources

The CEAA for soil resources, an area comprising approximately 315,131 acres, includes the GJFO portion of fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 12,248 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 511 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. With reclamation and adherence to SWMP and COAs presented in Appendix A, the Proposed Action would be mitigated, and cumulative impacts to soils would be minimal.

#### 4.2.3 Surface Water and Groundwater Quality

The CEAA for water resources, an area comprising approximately 315,131 acres, includes the GJFO portion of fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1).

Past and present surface disturbance from analyzed activities within the CEAA was approximately 12,248 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 511 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. With reclamation and implementation of BMPs as outlined in the SWMP, potential impacts to groundwater would be largely mitigated. Therefore, cumulative impacts to water quality would be minimal.

#### **4.2.4 Invasive Non-native Species**

The CEAA for non-native resources, an area comprising approximately 315,131 acres, included the GJFO portion of fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 12,248 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 511 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. With monitoring and implementation of the BLM's Noxious and Invasive Weed Management Plan for Oil and Gas Operators (BLM 2007a) and BMPs, cumulative impacts from invasive non-native species would be minimal.

#### **4.2.5 Vegetation**

The CEAA for vegetation, an area comprising approximately 315,131 acres, included the GJFO portion of fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 12,248 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 511 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. This would represent a minimal increase in surface disturbance in the CEAA, which would be mostly reclaimed over time.

#### **4.2.6 Wetlands and Riparian Zones**

The CEAA for wetlands and riparian zones, an area comprising approximately 1,605 acres, was the estimated extent of riparian habitat within fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-2). Based on National Agriculture Imagery Program (NAIP) imagery, the average extent of riparian habitat was estimated by buffering (by 200 feet) selected parts of a GIS layer depicting existing waterbodies. Past and present surface disturbance from analyzed activities within the CEAA was approximately 114 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 0 acres.

#### **4.2.7 Threatened or Endangered Animal Species**

The CEAA for threatened or endangered animal species, an area comprising approximately 315,131 acres, included the GJFO portion of fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 12,248 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 511 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. Cumulative effects to threatened or endangered animal species would be minimal with successful implementation of the COAs presented in Appendix A.

#### **4.2.8 Threatened or Endangered Plant Species**

The CEAA for threatened or endangered plant species, an area comprising approximately 202,708 acres, included the combined habitat of DeBeque phacelia and the northern population of *Sclerocactus glaucus* (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 7,090 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 359 acres. Cumulative effects to Colorado hookless cactus and DeBeque Phacelia should be mitigated and, therefore, negligible with successful implementation of the COAs presented in Appendix A.

#### **4.2.9 Sensitive Species (Plant or Animal)**

The CEAA for sensitive species, an area comprising approximately 421,723 acres, included the BLM GFJO portion of CPW Game Management Units 31 and 42 (Map 4.2-2). Past and present surface disturbance from analyzed activities within the CEAA was approximately 14,643 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 590 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. Cumulative effects to sensitive plant and animal species would be minimal with successful implementation of the COAs presented in Appendix A.

#### **4.2.10 Wildlife**

The CEAA for wildlife, an area comprising approximately 421,723 acres, included the BLM GFJO portion of CPW Game Management Units 31 and 42 (Map 4.2-2). Past and present surface disturbance from analyzed activities within the CEAA was approximately 14,643 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 590 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. This would represent a minimal increase in surface disturbance within the CEAA, which would be mostly reclaimed over time.

#### **4.2.11 Paleontological Resources**

The CEAA for paleontological resources, an area comprising approximately 277,621 acres, included the GJFO portion of the outcrop of the Wasatch Formation (Map 4.2-2). Past and present surface disturbance from analyzed activities within the CEAA was approximately 19,746 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 481 acres. The Proposed Action is not expected to affect paleontological resources, and no increase in cumulative effects would occur.

#### **4.2.12 Visual Resources**

The CEAA for visual resources was assumed to be a 2-mile buffer around the May 2013 project disturbance consisting of 95,675 acres (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 4,060 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 322 acres. Implementation of measures included in COAs presented in Appendix would minimize potential impacts to visual resources and minimize cumulative impacts.

#### **4.2.13 Transportation and Access**

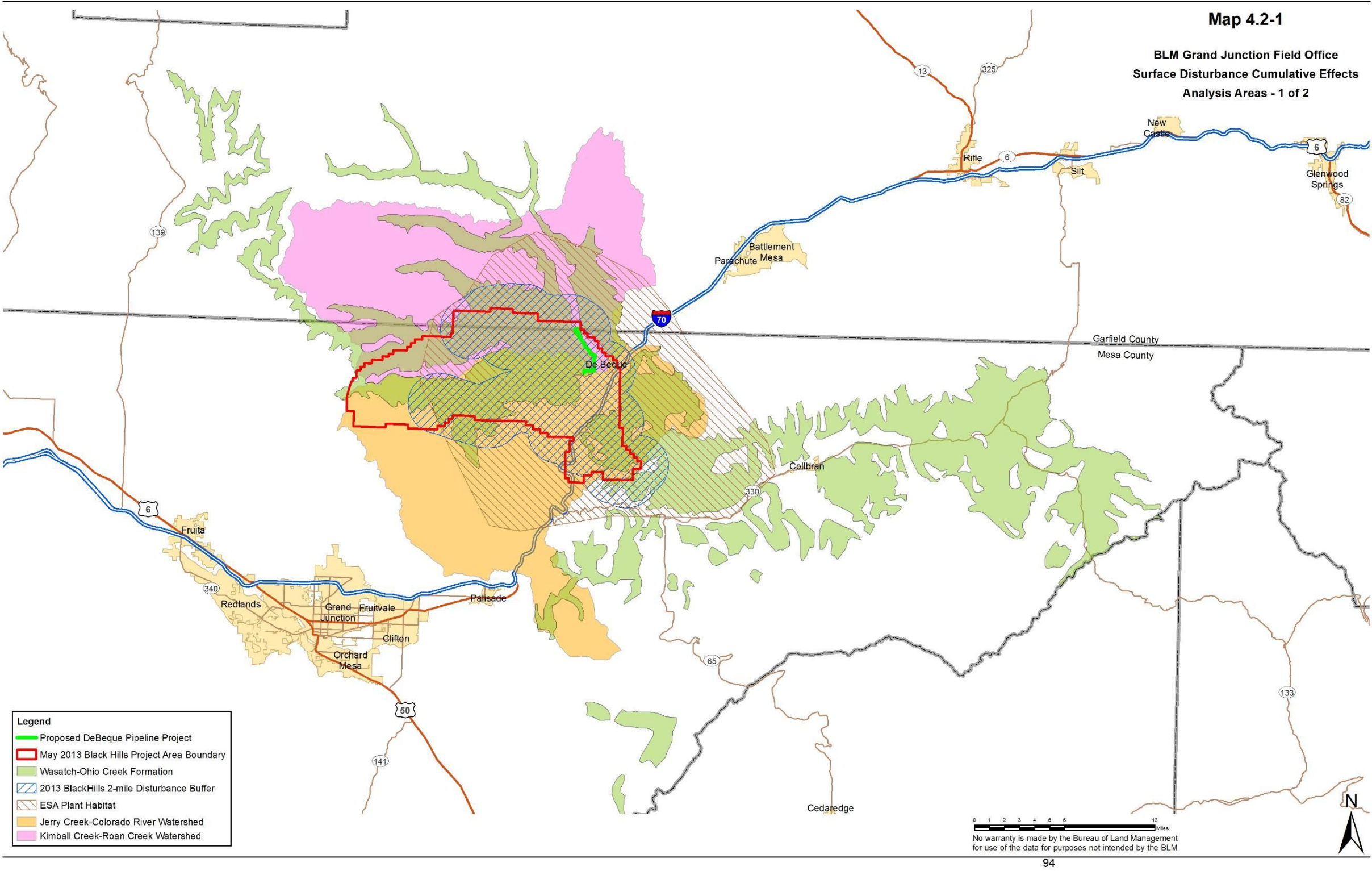
The CEAA for transportation and access was Garfield and Mesa counties, an area comprising approximately 4,016,979 acres. Past and present surface disturbance from analyzed activities within the CEAA was approximately 14,643 acres. Analysis of this resource was limited to existing and reasonably foreseeable development of roads and trails. Such past and present development within the CEAA was approximately 15,109 acres. No road disturbance beyond usage of access roads, analyzed as part of the Proposed Action, is expected. Cumulative effects would be minimal.

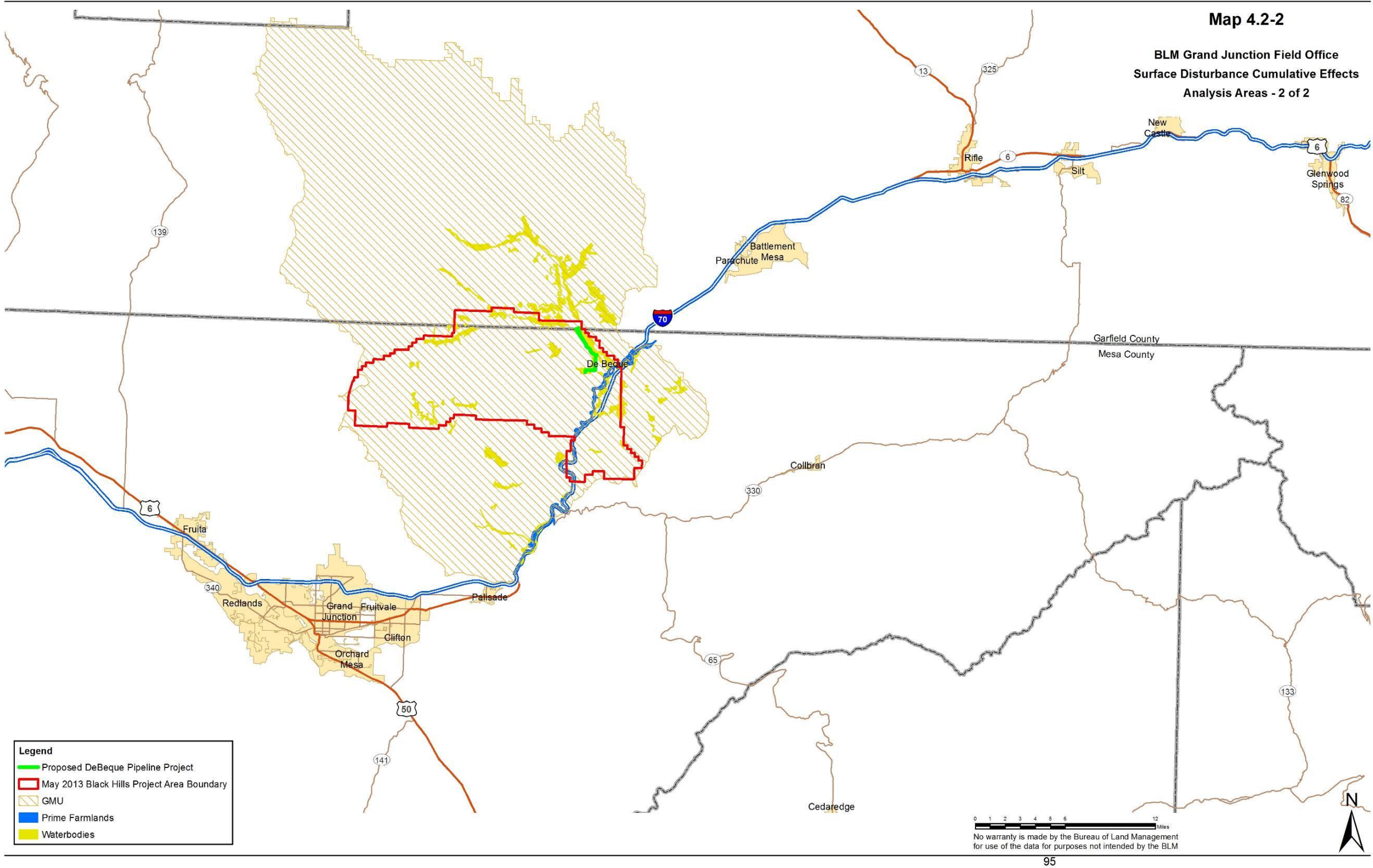
#### **4.2.14 Wastes, Hazardous or Solid**

The CEAA for hazardous or solid waste, an area comprising approximately 315,131 acres, included the GJFO portion of fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 12,248 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 511 acres. With adherence to the GJFO Standard Conditions and SPCC Plan, any surface spills should be quickly managed and remediated, which would result in negligible or no cumulative impacts.

#### **4.2.15 Prime or Unique Farmlands**

The CEAA for prime and unique farmlands, an area comprising approximately 13,415 acres, included the appropriate portion of those soils located within fifth-order watersheds affected by the May 2013 project disturbance (Map 4.2-1). Past and present surface disturbance from analyzed activities within the CEAA was approximately 561 acres. Additional surface disturbance resulting from analyzed foreseeable activities was estimated to be approximately 92 acres. The Proposed Action would result in an additional 36.34 acres of surface disturbance. This would represent a minimal increase in surface disturbance within the CEAA.





## CHAPTER 5. CONSULTATION AND COORDINATION

### 5.1 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONTACTED

The BLM has consulted the following individuals, organizations, and agencies:

- U.S Fish and Wildlife Service
- Colorado Parks and Wildlife
- Colorado State Historic Preservation Officer

### 5.2 INTERDISCIPLINARY REVIEW

Edge Environmental, Inc., an environmental consulting firm, prepared this document under the direction and independent evaluation of the BLM. The BLM, in accordance with 40 CFR 1506.5 (a) and (c), is in agreement with the findings of the analysis and approves and takes responsibility for the scope and content of this document.

**Table 5.1-1  
Interdisciplinary Team Preparers and Reviewers**

<i>Name</i>	<i>Title</i>	<i>Area of Responsibility</i>
<b><i>Grand Junction Field Office</i></b>		
Catherine Ventling	Natural Resource Specialist	Project Lead, Lands and Minerals
Natalie Fast Alissa Leavitt-Reynolds	Archaeologist	Cultural Resources, Native American Religious Concerns
Chris Pipkin	Outdoor Recreation Planner	Access, Transportation, Recreation, VRM
Jacob Martin	Range Management Specialist	Vegetation, Forestry, Range Management
Scott Gerwe	Geologist	Minerals, Paleontology
Alan Kraus	Hazard Materials Specialist	Hazardous Materials
Robin Lacy	Realty Specialist	Land Tenure/Status, Reality Authorizations
Heidi Plank John Toolen	Wildlife Biologists	Migratory Birds, Special Status Animals, Terrestrial & Aquatic Wildlife
Anna Lincoln	Ecologist	Land Health Assessment, Special Status Plants
Nate Dieterich	Hydrologist	Soils, Water Quality, Hydrology, Water Rights
Lathan Johnson	Fire Ecologist Natural Resource Specialist	Fire Ecology, Fuels Management
Mark Taber	Weed and Range Management Specialist	Invasive Non-Native Plants
Christina Stark	NEPA and Environmental Coordinator	Riparian, Environmental Justice, Prime & Unique Farmlands, Environmental Coordinator
<b><i>Colorado River Valley Field Office</i></b>		
Allen Crockett	Supervisory Natural Resource Specialist	CRVFO Team Lead
John Brogan	Archaeologist	Cultural Resources

<b>Name</b>	<b>Title</b>	<b>Area of Responsibility</b>
Julie McGrew	Natural Resource Specialist	Visual Resources
Judy Perkins	Botanist	Invasive Non-native Species, Special Status Plants, Vegetation
Sylvia Ringer	Wildlife Biologist	Migratory Birds, Special Status Wildlife, Other Aquatic and Terrestrial Wildlife
Todd Sieber	Geologist	
<b>Edge Environmental, Inc.</b>		
<b>Resource/Responsibility</b>	<b>Contact</b>	
Mary Bloomstran	Project Manager, Wastes, Hazardous or Solid	
Carolyn Last	Document Control	
Jim Zapert / Susan Connell (Carter Lake Consulting)	Air Quality and Climate	
Dan Duce / Nikie Gagnon	Soils, Prime or Unique Farmlands, Water Resources, Land Tenure, ROW, Other Uses, Visual Resources, Recreation, Special Designations, Wild and Scenic Rivers, Range Management, Wild Horse and Burro, Forest Management	
Rebecca Buseck	Invasive, Non-Native Species, Vegetation, Wetlands and Riparian Zones, Special Status Animal Species, Special Status Plants	
Dwight Chapman	Migratory Birds, Wildlife (Fish, Aquatic and Terrestrial), Cultural Resources, Paleontological Resources	
Sandra Goodman	Socioeconomics, Environmental Justice, Transportation/Access	
Joseph Thomas	GIS Analysis	

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## **APPENDIX A**

### **BLM-GJFO Standard Surface Use Conditions of Approval for Oil and Gas Projects**

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**Standard Surface Use Conditions of Approval (COAs)  
for Oil and Gas Projects**

1. Administrative Notification and Requirements. The operator shall notify the BLM representative at least 48 hours prior to initiation of construction or reclamation activities. A pre-construction meeting may be scheduled to review all conditions and or stipulations with the operator. Complete copies of all applicable permits, shall be kept on site during construction and drilling activities. All onsite personnel shall review the approved permit with the COAs before working on the project.
2. Fire. The operator shall implement measures to prevent fires on public and private land and shall be held responsible for the costs of suppressing fires on public lands that result from the actions of its employees, contractors, or subcontractors. Range or forest fires caused or observed by the operator's employees, contractors, or subcontractors shall be immediately reported to the BLM Grand Junction Dispatch 970-257-4800. All fires or explosions that cause damage to property or equipment, loss of oil or gas, or injuries to personnel shall immediately be reported to the BLM Dispatch and the BLM Grand Junction Field Office at 970-244-3000.

During conditions of extreme fire danger, surface-use operations may be restricted or suspended in specific areas, or additional measures may be required by the BLM.

In cases of fire hazard, BLM may require adaptive management techniques to minimize risks.

3. Other Permits. This authorization is contingent upon receipt of and compliance with all applicable federal, state, county, municipal and local permits, including all necessary environmental clearances and permits (Colorado Oil and Gas Conservation Commission (COGCC), U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), Colorado Department of Transportation (CDOT), Colorado Department of Public Health and Environment (CDPHE), County Health and Road Departments, and local laws and regulations.
  4. Existing Uses. The operator shall obtain agreements allowing construction and maintenance with all existing right-of-way holders, authorized users, and pipeline operators prior to surface disturbance or construction of a location or access across or adjacent to any existing or approved rights-of-way or pipelines.  
In the case of privately owned surface, the operator shall certify to BLM that a Surface Use Agreement has been reached with the private surface owners prior to commencing construction and that the owner has been provided a copy of the Surface Use Plan of Operations (SUPO) required as part of a federal APD. If Agreement cannot be reached, the operator shall comply with provisions of the laws or regulations governing the Federal right of re-entry to the surface (43 CFR 3814).
  5. Migratory Bird Treaty Act. New surface disturbance, especially vegetation removal, shall not be allowed between **May 15 and July 15** to minimize potential taking of migratory birds and/or eggs, unless otherwise approved in writing by the Grand Junction Field Manager. If surface disturbance is proposed during this period, a written request for exception and a migratory bird survey shall be submitted for approval prior to any surface disturbance. If vegetation removal is accomplished prior to May 15, exception may be granted to allow project activities to proceed during the closure period.
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Any bird found dead, injured, or apparently ill, especially in or near a pit, trench, tank, exhaust stack, or fence shall immediately be reported to the BLM at 970-244-3000.

Open metal or plastic pipes or posts shall be permanently filled or capped, to prevent bird entrapment.

All production equipment with a chimney, vent, or stack shall be fitted with a device such as an excluder cone that prevents birds and small mammals from entering or perching on any part of the chimney. Flat screens inside stacks are insufficient protection.

All open top tanks and pits shall be covered or netted to eliminate any hazard to birds and flying mammals (CERCLA Section 101(14)).

6. Federally Protected Species Notifications. Any dead or injured migratory bird, bald or golden eagle, or species listed by the US Fish and Wildlife Service (FWS) as threatened or endangered, that is found in or adjacent to a pit, trench, tank, exhaust stack, or fence shall immediately be reported to the FWS at: Creed Clayton, USFWS, 445 West Gunnison Avenue, Suite 240, Grand Junction, CO 81501; creed\_clayton@fws.gov and to the Grand Junction Field Office at 970-244-3000.
7. Jurisdictional Waters of the U.S. The operator shall obtain appropriate permits from the U.S. Army Corps of Engineers (USACE) prior to discharging fill material into Waters of the U.S. in accordance with Section 404 of the Clean Water Act. Waters of the U.S. are defined in 33 CFR Section 328.3 and may include wetlands as well as perennial, intermittent, and ephemeral streams. Impacts to Waters of the U.S. may require mitigation. Copies of any approved USACE permits or verification letters shall be forwarded to the BLM prior to permitted work commencing.

When activity in a wetland is unavoidable, the operator may be required to prevent disturbance by use of wooden or other protective mats and shall restore all temporarily disturbed wetlands or riparian areas. The operator shall consult with the BLM to determine appropriate mitigation, including verification of native plant species to be used in restoration. Temporary and permanent impacts to jurisdictional Waters of the U.S. may require additional mitigation, including compensatory offsite mitigation. Contact the USACE, Colorado West Regulatory Branch, at 970-243-1199, or susan.nall@usace.army.mil.

8. Heritage Resources - Cultural and Paleontological. All persons in the area who are associated with this authorization shall be informed that any person who, without a permit, injures, destroys, excavates, appropriates or removes any vertebrate fossil, historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item, or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361). Any heritage resource discovered requires that work in the area must stop and the BLM Authorized Officer notified. Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the proponent and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh). In the event of an inadvertent discovery, the following apply:
  - a) The National Historic Preservation Act (NHPA) [16 USC 470s., 36 CFR §800.13], as amended, requires that if subsurface cultural values are uncovered during operations, all work in the vicinity of the resource will cease and the Authorized Officer with the BLM notified immediately. The operator shall take any additional measures requested by the BLM to protect discoveries until they can be adequately evaluated by the permitted archaeologist. Within 48 hours of the discovery, the SHPO and consulting parties will be notified of the

discovery and consultation will begin to determine an appropriate mitigation measure. BLM in cooperation with the operator will ensure that the discovery is protected from further disturbance until mitigation is completed. Operations may resume at the discovery site upon receipt of written instructions and authorization by the authorized officer.

- b) The Native American Graves Protection and Repatriation Act (NAGPRA) [25 USC 3001 et seq., 43 CFR 10.4] requires that if inadvertent discovery of Native American Human Remains or Objects of Cultural Patrimony occurs, any activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice be made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA §3(d)).
  - c) The Paleontological Resources Preservation Act (PRPA) [16 U.S.C. 470aaa] requires the proponent to immediately suspend activities in the vicinity, protect the discovery from damage and notify the BLM Authorized Officer of any paleontological resources discovered as a result of operations under this authorization. The Authorized Officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the Authorized Officer after consulting with the operator. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (1) following the Authorized Officer's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (2) following the Authorized Officer's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
  - d) If human remains are discovered on private or state land associated with this authorization, the BLM will notify the county coroner or medical examiner within 48 hours, which will comply with Colorado Revised Statutes (Appendix) regarding the discovery of human remains (24-80-1302).
  - e) In a new discovery situation, the operator may relocate activities to avoid the expense of mitigation and delays associated with this process, as long as the new area has been appropriately inventoried and has no other resource concerns, and the exposed materials are recorded and stabilized. Otherwise, the operator shall be responsible for mitigation costs. The BLM authorized officer will provide technical and procedural guidelines for relocation and/or to conduct mitigation. Upon verification from the BLM authorized officer that the required mitigation has been completed, the operator will be allowed to resume construction.
9. Big Game Winter Range Timing Limitation. Where winter range areas identified by BLM are not protected by lease stipulations, an annual Timing Limitation (TL) period shall apply from January 1 to March 1, to minimize impacts to wintering big game. All construction, drilling, completion, workovers, and other intensive activities are prohibited during the 60-day period. Requests for exceptions to TLs shall be submitted in writing to the BLM via a Sundry Notice or letter.
10. Range Management. Damage to range improvements (fences, gates, reservoirs, pipelines, etc.) shall be avoided, but if they are damaged, the operator shall immediately repair or replace them.

Where an access road bisects an existing livestock fence, a steel frame gate or a cattle-guard with a bypass gate shall be installed across the roadway, unless a landowner dictates otherwise.

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11. Soils. Cuts and fills shall be minimized when working on erosive soils and on slopes in excess of 30 percent. On slopes greater than 50 percent, BLM may require a professional geotechnical analysis and/or engineered plans prior to construction.

All cut and fill slopes for roads and well pads shall be protected against rilling and erosion by BMPs such as soil texturing and seeding or additional measures approved by the BLM to minimize the potential for erosion, soil loss and slope failure. Measures may include matting, geotextiles, weed-free straw crimping, anchored bales/wattles, as needed or as detailed by storm water plan or BLM permit. BMPs shall be monitored and maintained in functional condition.

12. Weed Control. Before any mobilization of equipment onto public lands, in order to prevent the spread of invasive species, the operator shall perform inspections to insure that all construction equipment and vehicles are clean and free of soil, mud, and vegetative material. The operator shall provide copies of such inspections upon request by the BLM. Vehicles and equipment shall avoid driving through or parking on weeds.

Straw mulch, seeds, BMPs and all materials used on BLM lands shall be certified weed free. Certification shall be provided to the BLM upon request.

In areas with sensitive plant species, weed treatments shall be limited to spot treatments and require site-specific pre-approval by the BLM.

The operator shall regularly monitor and promptly control noxious weeds or other undesirable plant species as set forth in the BLM/USFS *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*, dated March 2007. Pesticide Use Proposals (PUPs) shall be approved by the BLM prior to the use of herbicides.

Annual reports regarding weed management and reclamation success shall be submitted to the Grand Junction Field Office in compliance with the *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*.

13. Dust Abatement. The operator shall prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. If dust abatement is insufficient, the BLM may direct the operator to change the level and type of treatment. BLM approval is required before application of surfactants, binding agents, or other dust-suppression chemicals on federally permitted projects and on public lands. More stringent dust control may be required in areas adjacent to Federal- or State-listed threatened, endangered, or sensitive plant species.
14. Pre-Construction and Limits of Disturbance. An onsite pre-construction meeting may be required, to ensure that construction proceeds in accordance with all specifications, approved permit, and COAs. At least 48 hours prior to initiation of construction or reclamation activities, contact Julia Christiansen at 970-244-3093 or the Grand Junction Field Office at 970-244-3000.

Construction control and limit-of-disturbance stakes shall be placed before construction, and maintained in place throughout, to ensure construction in accordance with the surface use plan.

Pre-construction storm water BMPs shall be installed before pre-construction inspection.

Limit-of-disturbance (LOD) stakes or markers shall be placed before pre-construction inspection. If disturbed during construction, they shall be immediately replaced before construction proceeds and remain in place until final construction cleanup is completed. Markers shall be visible from

one to another and no further than 100 feet apart. Pipeline and access road edges, cut and fill slopes, and soil storage areas shall also be distinctively marked with flagging, snow fence, or stakes, visible from one to another. All construction control markers shall remain in place until the post-construction inspection with the BLM is concluded.

15. Stormwater Management and Soil Protection. A General Construction Permit from the Colorado Department of Public Health and Environment (CDPHE) is required and a copy shall be provided to the BLM prior to construction. Permit compliance, which coincides with BLM resource protection objectives, requires a site-specific Storm Water Management Plan, controls for storm water run-off and run-on, adaptive BMPs and systematic monitoring and maintenance of all BMPs. Storm water BMPs may also be designed to function as Spill Prevention, Control, and Countermeasures (SPCC) controls, reclamation BMPs or visual resource protection BMPs.

Pre-construction storm water BMPs shall be installed before construction starts and be inspected during pre-construction inspections.

All BMPs must be maintained in good repair and functional condition, including clean-out of sediment basins and catchments, and replacement of straw wattles/ bales or silt fence.

16. As-Built Details. Within 30 days of setting production facilities or completing a facility, pipeline, location, or new road, the operator shall submit to the BLM a digital "as-built" file that documents the actual boundaries of disturbance for that location/feature. This perimeter shall include all disturbance related to the permitted location: the pad, all storm water BMPs, and the complete disturbance area of new access roads. All fill slopes, cut slopes, associated soil storage areas, etc. shall be depicted. The digital depiction shall be in an ArcGIS-compatible format (shapefile or geodatabase), in NAD83, UTM coordinate system, Zone 13 North, in meters.

17. Drainage Crossings and Culverts. Pads, roads, and pipelines shall be located away from defined drainages wherever possible. Where construction is located within 100 feet of a drainage, an adequate vegetative buffer, artificial buffer (e.g., straw bales, matting, etc.), or filter strip shall be maintained between the constructed feature and the drainage, to minimize sediment transport into the drainage.

All vehicles shall be fueled no closer than 100 feet from stream corridors, measured from the top of the bank or, if wetland or riparian vegetation is present, from the outer edge of these stream-related features.

Any construction activities at perennial, intermittent, and ephemeral drainage crossings (e.g. burying pipelines, installing culverts) shall be timed to avoid high flow conditions. The minimum culvert diameter in any installation for a drainage crossing or road drainage shall be 24 inches. Culverts on perennial and intermittent streams shall be designed to allow for passage of aquatic biota. Culverts at drainage crossings shall be designed and installed to pass, without development of a static head at the pipe inlet, at least a 25-year storm event, but may be deemed to require additional culvert design capacity. Due to the flashy nature of area drainages and anticipated culvert maintenance, the USACE recommends designing drainage crossings for the 100-year event. Contact the USACE Colorado West Regulatory Branch at 970-243-1199.

18. Road Construction, Use, and Maintenance. Roads shall be crowned or sloped, drained with ditches, culverts and/or water dips, and constructed, sized and surfaced in compliance with BLM Gold Book standards (pp. 24-28).
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Water outlets and roadside ditches shall incorporate BMPs such as rip-rap, sediment catchments and anchored check structures that slow water velocity, to prevent erosion and sediment transport. Ditches may be revegetated and/or include large rocks or other BMPs to slow water and settle sediment. Ditch revegetation may be required in erodible soils. All drainage ditches and culverts shall be kept clear and free flowing, and shall be maintained in good condition.

Road use and construction shall halt under conditions of undue damage and erosion to soils, roads, and/or locations. When saturated soil conditions exist on access roads or location, or rutting deepens past 3 inches, construction, and travel shall halt until soil material dries out, is frozen sufficiently or is otherwise brought to standards that provide for resource protection. Where applicable, initial road base/gravel application shall be of CDOT Class 6 aggregate or equivalent, to a minimum depth of 6 inches.

Where roads are located near drainages, vegetated buffer strips shall be left between areas of disturbance and drainages. (See Drainage Crossings and Culverts.)

All cut and fill slopes for roads (and well pads and related locations) shall be protected against rilling and erosion with BMPs such as soil texturing and seeding or additional measures approved by the BLM. Measures may include geotextiles, weed-free straw crimping/ bales/ wattles/ matting, as needed or as detailed by storm water plan or BLM permit. BMPs shall be monitored and maintained in functional condition.

Roads that access active construction and drilling sites shall be posted with warning signs to alert hunters and recreational vehicle users to project personnel and vehicles in the area. Construction ad rig schedules may be included.

Project personnel shall restrict activities and travel to permitted roads and sites.

Operator shall install speed control measures on project-related unpaved roads and enforce them with project personnel.

The operator shall routinely provide timely maintenance of roads. Regular maintenance shall include, but not be limited to dust abatement, reconstruction of the crown, slope, or water dips/bars; blading or resurfacing; clean-out of ditches, culverts, catchments and other BMPs. When rutting of the travel-way deepens to 3 inches, maintenance or upgrade shall be conducted as approved by BLM.

19. Visual Resource Protection. Pipelines, work areas, roads, and associated areas of surface disturbance shall be located and placed to avoid or minimize visibility from travel corridors, residential areas and other sensitive observation points and shall be designed to maximize reshaping of cut/fill slopes and reclamation of the pipeline alignment, temporary work areas, and associated disturbance.

To the extent practical, existing vegetation shall be preserved when clearing and grading for pipelines, work areas, roads, and other areas of surface disturbance. Trees or shrubs may be appropriate to cut or shred in place, to protect visual resources, enhance slope stability or to leave root systems in place. The BLM may direct that cleared trees and rocks be salvaged and redistributed over reshaped cut-and-fill slopes or along linear features. Salvaged native rocks may be also be used where appropriate as perimeter storm water controls, toe slope anchors or angular armor against erosion protection.

To mitigate straight-line visual contrast effects of cut/ fill slopes and linear corridors cleared vegetation, adaptive management techniques may be required by the BLM before or after construction. For example, additional tree removal could be required along a contrasting edge, to create irregularly shaped openings or natural-looking mosaic patterns; surfaces might require texturing or coloring to mitigate visual contrasts.

Construction shall utilize measures such as soil-roughening, recontouring, and/or revegetation, and/or shall be employed to reduce contrasts in texture, color, and form. Hydro-applied colorant of fill slopes may be required.

To blend with the natural environment, all permanent above-ground facilities placed on the location shall be painted a natural color to blend with the background landscape, in a non-reflective finish. A BLM Standard Environmental Color may be specified.

Where determined by the BLM to be necessary based on site-specific visual impacts of project components, a site-specific Visual Mitigation Plan shall be required before surface disturbance and project activities begin. This plan would include a detailed analysis of potential impacts and mitigation measures that shall be developed and implemented.

20. Construction, Vegetation Removal, Topsoil Stripping and Storage. Pre-construction BMPs shall be installed inspected by the BLM before construction. Areas of approved activities shall be cleared of brush and trees. Trees or shrubs may be appropriate to cut or shred in place, depending on needs to protect visual resources, enhance slope stability, or leave root systems in place. No stump left in place shall exceed six inches in height. Accordingly,

- Trees that are chipped or shredded in place shall be salvaged and stored with topsoil.
- Trees that are cut down, cut up, or track-walked shall be salvaged and stored as storm water perimeter controls for later redistribution on reclaimed areas.

A wood cutting permit from the BLM may be required prior to any clearing.

When saturated soil conditions exist on access roads or location, construction shall be halted until soil dries or until activities can proceed without soil damage. No saturated or frozen topsoil shall be stripped.

At the time of construction, (pipelines, roads, or other surface facilities) topsoil shall be stripped following vegetation removal. Topsoil shall include all suitable growth medium present at a site, as indicated by color or texture — depths may vary across a site. Stripped topsoil and vegetation smaller than 4 inches in diameter shall be segregated and stored separately from sub-soils or other excavated material and replaced prior to final seedbed preparation.

To facilitate its replacement, extend its biological viability, and create a berm to control stormwater, topsoil excavated for construction of pipelines and roads shall be wind-rowed, segregated, and stored for later redistribution during reclamation.

Topsoil storage piles, storm water control features, temporarily disturbed areas along roads and pipelines, and cut and fill slopes shall be seeded at the time of construction or within 30 days, to stabilize materials, maintain biotic soil activities, and minimize weeds. Seedbed prep shall be required unless seeding occurs immediately after construction.

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21. Chemical and Fuels - Secondary Containment /Exclosure Screening – The operator shall prevent all hazardous, poisonous, flammable, and toxic substances from contacting soil and/or water. At a minimum, the operator shall install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances. Containment shall be sufficient to contain 110% of the contents as well as any drips, leaks and anticipated precipitation.

All installed production facilities (storage tanks, load outs, separators, treating units, etc.) with the potential to leak or spill oil, condensate, produced water, glycol, or other fluid which may be a hazard to public health or safety shall be placed within an appropriate impervious secondary containment structure that shall hold 110% of the capacity of the largest single container within it for 72 hours.

All secondary containment systems shall be designed, constructed, and maintained to prevent exposure of wildlife and livestock to harmful substances. The operator shall install effective wildlife and livestock exclusion systems like fencing, netting, expanded metal mesh, lids and grate covers.

Chemical containers shall be clearly labeled, maintained in good condition and placed within secondary containment. They shall not be stored on bare ground, nor exposed to sun and moisture.

Any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported per the Comprehensive Environmental Response Compensation and Liability Act of 1980, Section 102b (CERCLA). Copies of any report to any Federal agency or State government as a result of a reportable release/ spill of any toxic substances shall be furnished to the BLM, concurrent with the filing of the reports to any Federal agency or State government.

The operator shall dispose of any fluids that collect in the containment system which do not meet applicable State or U.S. Environmental Protection Agency livestock water standards, per State law and in a manner so that fluids do not drain to the soil or ground.

The BLM, CDPHE Water Quality Control Division, COGCC, and CPW shall be contacted immediately if a reportable spill occurs.

22. Pipelines. Buried pipelines shall have a minimum cover of 48 inches in a roadway and at road crossings, 36 inches through typical soil and rock, and 24 inches in areas requiring rock blasting. The permit holder shall bury a pipeline to a depth that safely accommodates existing land and road uses and routine maintenance activities such as grading.

Pipeline warning signs permanently marked with the operator's and owner's names (emergency contacts) and purpose (product) of the pipeline shall be installed within five days of construction completion and prior to use of the pipeline. Pipeline warning signs are required at all road crossings and along the alignment, visible from sign to sign.

Pipelines installed beneath stream crossings shall be buried to a minimum depth of 4 feet below the channel substrate, to avoid pipeline exposure by channel scour and degradation. Following pipeline burial, the channel grade and substrate composition shall be returned to pre-construction conditions.

All pipeline welds within 100 feet of a perennial stream shall be x-rayed to prevent leakage. Where pipelines cross streams that support Federal- or State-listed threatened or endangered species or other sensitive species, the BLM may require additional safeguards, including double-walled pipe, and remotely-actuated block or check valves on both sides of the stream.

Buried pipelines shall be reclaimed to final reclamation standards at the time of installation.

23. Aboveground Facilities. To blend with the natural environment, all permanent above-ground facilities shall be painted a natural color that blends with the background landscape, in a non-reflective finish. The BLM may specify a Standard Environmental Color.
24. Reclamation. The long-term objective of reclamation is to return the land, following authorized use, to a condition approximating that which existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats.

Buried pipelines shall be reclaimed to final reclamation standards at the time of installation.

Prior to reclamation of the pipeline and other disturbance areas, the operator shall meet with BLM to inspect the disturbed area, review the existing reclamation plan, and agree to any changes to the plan.

The BLM shall be notified at least 48 hours prior to commencing any reclamation work and within 48 hours of completion of reclamation work. Prior to recontouring and reseeding the pipeline and associated areas of surface disturbance, the operator shall complete the following:

- All equipment, facilities, and trash shall be removed from the pipeline alignment, temporary work space areas, and any associated surface locations.
- Subsurface pipelines shall be purged and plugged at specific intervals.

Recontouring for reclamation shall consist of returning the pipeline alignment, cut-and-fill slopes, temporary work spaces, and any associated surface locations to natural conditions resembling those that existing prior to disturbance and that blend with adjacent undisturbed areas, as specified in the reclamation plan approved by BLM.

Requirements for seedbed preparation, soil amendments, seed, seeding procedures, mulching, erosion control, fencing, site security, and monitoring shall be as follows:

- a. *Deadlines and Objectives.* (Deadlines are subject to extension on a case-by-case basis, following application in writing to the BLM.)

Reclamation shall restore landforms; reestablish and maintain biologically active topsoil, including vegetation cover; control erosion and sediment transport; and minimize losses of habitat, visual resources, and forage throughout the life of the well. (BLM Northwest District Recommended Outline for Surface Reclamation Planning for Oil and Gas Operations, Including Objectives and Performance and Monitoring Standards, 2013).

Topsoil storage piles, storm water control features, temporarily disturbed areas along roads and pipelines, and cut and fill slopes shall be seeded at the time of construction or within 30 days, to stabilize materials, maintain biotic soil activities, and minimize weeds. Seedbed prep shall be required unless seeding occurs immediately after construction.

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Prior to reclamation, the operator shall meet with BLM to inspect the disturbed area, to review the reclamation plan and agree upon any revisions to the plan.

Seed tags shall be submitted for BLM approval at least 14 days before proposed seeding.

The BLM shall be notified at least 48 hours prior to beginning any reclamation work.

Weed-free certification, seed tags, and report describing the reclamation shall be submitted to the Grand Junction Field Office within 30 days after seeding.

Reclamation performance standards shall be considered met when disturbed have been:

- recontoured and stabilized
- revegetated with a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community that anchors soils, minimizes visual impacts, provides forage, and resists invasion by noxious weeds and other invasive non-native plants

At a minimum, the established plant community shall consist of species included in the seed mix and/or desirable species which occur in the surrounding natural vegetation.

- Permanent vegetation cover will be determined successful when the basal cover of desirable perennial species is at least 80 percent of the basal cover of the adjacent undisturbed area or of potential basal cover as defined in the National Resource Conservation Service Ecological Site(s) for the area.
- The resulting plant community (in a healthy early seral state) must contain at least 80 percent desirable plant species, preferably one of which is a forb or shrub. Plants must be resilient, as demonstrated by vigor, well-developed root systems and flowers. Shrubs must be well established and at least in a “young” age class, rather than comprised mainly of seedlings that might not survive.
- No one species may exceed 70 percent basal cover in the resulting plant community, to achieve species diversity on the site. Desirable species include those defined by those in the BLM-approved seed mix, other desired species found in the reference area, or potential species in the NRCS range/ecological site.
- Reference areas may be identified when areas near the disturbance do not reflect the appropriate plant community. Prior to BLM approval for use as a reference area, an operator may provide quantitative site measurements of vegetation cover, vegetation composition, woody plant density, and percent bare ground

Operators and right-of-way holders are required to meet reclamation performance standards. Successful compliance with standards is determined by the BLM. If revegetation is unsuccessful, subsequent treatments and reseeding shall be required until standards are met.

- b. Recontouring and Seedbed Preparation.* Leaving in place only the areas needed for production, pull fill slope soils up and return them to cut areas, pushing up and over the edges of the cut. Compacted areas to be reclaimed shall be ripped in two passes at opposite directions before being reshaped.

Following recontouring, evenly redistribute salvaged topsoil. Soil amendments may be permitted or required. Seedbed preparation shall consist of scarifying (roughening) spread

topsoil prior to seeding, unless seeding takes place immediately or is drilled. Seedbed preparation techniques may include pocking, ripping, disking, or other soil roughening techniques. If contour cultivating is approved, it shall be 4 to 6 inches deep or to the depth of redistributed topsoil. If pocking, pit the surface with small depressions to form micro-basins, in a "fish scale" pattern. Construct them along the contour, across (not parallel with) the natural flow of water and/or prevailing wind.

c. *Seed Mixes.* All disturbed areas shall be seeded with a seed mixture approved by the BLM, consistent with BLM standards in terms of species and seeding rate for the specific habitat type within the project area.

- No seeding will occur until seed tags and/or other official documentation of the correct seed mix are submitted and approved by the BLM.
- Only viability-tested, certified seed for the current year, with a minimum germination rate of 80% and a minimum purity of 90% shall be used. Seed shall be viability-tested in accordance with State law(s) and within 9 months before purchase
- Seed that does not meet the above criteria shall not be applied to public lands.

d. *Approved Seed Mixture.* All disturbed areas shall be seeded with the following:

<b>EXAMPLE SEED MIX Species Name</b>	<b>Common Name</b>	<b>Synonym</b>	<b>Lbs/Acre (PLS)</b>
<b>Native Grasses</b>			
<i>Koeleria macrantha</i>	Prairie junegrass		1.0
<i>Muhlenbergia montana</i>	Mountain muhly		1.0
<i>Elymus elymoides</i>	Bottlebrush squirreltail	<i>Sitanion hystrix</i>	2.0
<i>Elymus glaucus</i>	Blue wildrye		5.0
<i>Elymus trachycaulus</i> , Var. "Pryor" or "Primar"	Slender wheatgrass	<i>Agropyron trachycaulum</i>	2.7
<i>Festuca idahoensis</i>	Idaho fescue		0.5
<b>Native Perennial Forbs</b>			
<i>Wyethia amplexicaulis</i>	Mule's-ear sunflower		3
<i>Linum lewisii</i>	Blue flax		0.5
<i>Penstemon strictus</i>	Rocky Mountain penstemon		1.0
<i>Sanguisorba minor</i> , var. "Delar"	Small Burnet		2.0
This rate is for drill seeding and shall be doubled for broadcast seeding.			<b>18.7</b>

e. *Seeding Procedures.* Seeding shall be conducted no more than 24 hours following final seedbed preparation. If revegetation is unsuccessful, the operator shall implement subsequent reseeds until reclamation standards are met.

Where possible, drill seed 0.5-inch deep, following the contour of the site. Follow drill seeding with cultipaction or crimped weed-free straw mulch, to enhance seed-to-soil contact and prevent loss of seeds and soil. In areas that cannot be drilled, broadcast seed at 2.0 times the application rate, within 24 hours of soil work. If seeding takes place later than within 24 hours of dirt work, cover seed 0.5 to 1 inch deep with a harrow or drag bar, unless pocking. When pocking is used as seedbed preparation, seed must be broadcast within 24 hours of soil prep.

- f. Erosion Control.* Cut-and-fill slopes shall be protected against erosion with the use of pocking/ pitting, lateral furrows, hydromulch or other measures approved by the BLM. Near drainages or in areas with high erosion potential, additional revegetation, BMPs, or other methods may be required, to reduce soil erosion and sediment transport.
- g. Monitoring.* The operator shall regularly monitor, for reclamation success and for invasive species, all sites categorized as “operator reclamation in progress” and shall submit an annual monitoring report of these sites to the BLM by December 1 of each year. The annual report shall document whether attainment of reclamation objectives appears likely. If objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator shall be responsible for implementing approved or specified measures.

## **APPENDIX B**

### **Project-Specific Conditions of Approval to be Attached as Stipulations to the Right-of-Way Grants**

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**Project-Specific COAs to be Attached as Stipulations to the ROW Grants**  
**Note: These are in addition to relevant Standard COAs (Appendix A)**

1. Air Quality

- To further minimize fugitive dust emissions, speeds shall be limited to 15 mph for vehicles traveling along the construction ROW.
- On access roads without a posted speed limit, speeds shall not exceed 30 mph.
- Clearing along the construction ROW shall not be conducted when winds are in excess of 35 mph.
- Construction shall occur during daylight hours to reduce noise impacts.
- All equipment shall have sound control devices no less effective than those provided by the manufacturer. All equipment shall have muffled exhausts.

2. Soils

- All available topsoil up to a depth of 6 inches shall be removed from the trenchline and working side of the construction ROW.
- Topsoil shall be stockpiled separate from subsoil and will not be used to pad the trench or construct trench breakers.
- Gaps shall be left periodically in the topsoil and subsoil windrowed to avoid ponding and excess diversion of natural runoff during storm events.
- Erosion control measures shall be installed in accordance with the SWMP.
- Pre-construction inspections shall include on-the-ground review of installed pre-construction stormwater BMPs and limit-of-disturbance staking.
- Exposed rock outcrops present in areas proposed for pipeline disturbance shall be removed intact, as possible (salvaging large pieces from the outcrop), and replaced on the ground surface at the margins of the disturbance area and/or as close to the original location as practical, to be redistributed as part of reclamation. Equipment bridges and mats shall be used where soils are saturated, to minimize compaction of soils and subsequent stream bank erosion.

3. Surface Water

- Flowing streams/ditches shall be crossed "in the dry" using a flume or dam and pump method, or alternatively, crossed by boring beneath.
- Dry drainages or washes that cross the construction ROW will not be blocked with topsoil or subsoil piles.
- Topsoil and subsoil shall be placed on the banks of the drainage or wash.
- The operator shall avoid locating, staging, refueling, and storage areas within 300 feet of any natural perennial or seasonally flowing stream, wetland, reservoir, or lake.
- BMPs shall be installed within 100 feet of all drainages to avoid erosion and sediment transport into perennial, intermittent, or ephemeral drainages.

- If hydrostatic test water or trench dewatering water is discharged, it shall be discharged to an upland area at least 150 feet from waters of the U.S. and wetlands, to infiltrate into the ground without causing erosion. BLM approval of the discharge location and proposed BMPs shall be obtained before discharging hydrostatic test water to an upland area.
- Pipeline construction across ephemeral and intermittent drainages shall occur when no flowing water is present.
- A copy of the SPCC Plan shall be provided to the BLM prior to construction.
- Pipelines that cross perennial, intermittent, and ephemeral stream channels shall be constructed to withstand floods of extreme magnitude, to prevent rupture and accidental contamination of runoff. Closely follow methods and analysis outlined in BLM technical note 423-Hydraulic Considerations for Pipelines Crossing Stream Channels, to prevent undesirable events.

4. Vegetation

- Cleanup and restoration shall occur at the time of pipeline installation.
- Seeding shall be in accordance with private landowner and BLM requirements.
- Drill or broadcast seed methods shall be employed to ensure proper seed placement. Broadcast seeding shall be employed only in areas where drill seeding is unsafe or physically impossible.
- Exclusion fencing shall be erected along the revegetated pipeline in highly vulnerable areas (i.e., along stream banks) to exclude livestock, accelerate reclamation of surface disturbance and minimize weed infestations, until monitoring determines that reclamation is successful. The BLM shall determine areas for potential exclusion.
- Vegetation removal and grading shall be minimized. Shrubs and trees shall be shredded or cut at ground level to facilitate reestablishment from existing root systems, to support reclamation and minimize erosion.

5. Wetlands and Riparian Zones

- Herbicides shall not be applied within 100 feet of wetlands and floodplains.
- USACE conditions in the Clean Water Act Section 404 (Nationwide) permit shall be implemented.
- Where possible, riparian canopy or streambank vegetation shall be left intact.
- Woody debris shall be retained to the extent practicable.
- Riparian tree saplings, such as cottonwoods and boxelders, with a diameter at breast height of 1 inch or greater shall not be removed.

6. Threatened, Endangered, or Sensitive Animals Species. No additional measures.

7. Threatened, Endangered, or Sensitive Plant Species

- No construction shall occur within 200 meters of DeBeque phacelia suitable habitat from April through June.
- No construction shall occur within 100 meters of Colorado hookless cactus plants between April and late May.
- Herbicides shall not be applied, unless recommended by the BLM, within 100 meters of

Colorado hookless cactus and other BLM-Sensitive plant species and 200 meters of DeBeque phacelia suitable habitat and/or plants.

- A biological monitor shall be onsite during all ground-disturbing activities, including installation of BMPs (conservation measures), construction, and reclamation activities to ensure effects to ESA-listed plants are minimized as much as possible. Monitors shall be utilized within at least 100 meters of Colorado hookless cactus plants and 200 meters of delineated DeBeque phacelia habitat or potential unsurveyed habitat.
- A Memorandum of Agreement (MOU) shall be implemented such that Black Hills Plateau Production, LLC, shall provide the approximate equivalent of costs that would have been incurred for conducting botanical surveys on the 164 private acres where survey permission was denied, as well as additional funds to cover administrative costs, in an amount not to exceed \$16,400. Such funds shall be put into a "Mitigation Fund" to address adverse effects to listed plants and critical habitat from the proposed pipeline.
- Conservation measures in the Biological Opinion shall be adhered to and implemented, and may require revision of the following:

Colorado Hookless Cactus

- Areas surveyed in 2013 shall be resurveyed during the appropriate survey season (Colorado hookless cactus flowering season – April through May) and prior to ground-disturbing activities within 100 meters of the proposed pipeline corridor and DeBeque Pumping Station to confirm absence of cactus plants, where permitted. To minimize effects to Colorado hookless cactus in the project area, the Project shall not construct within 100 meters of documented Colorado hookless cactus plants between April and late May.
- Temporary fencing shall be installed along the boundary of the proposed disturbance that occurs within 100 meters of known cactus plants prior to development to avoid trampling by workers or equipment during disturbance related activities. Fencing shall be installed immediately prior to surface-disturbing activities and removed immediately after disturbance is complete to minimize potential collection/identification of known sites.

DeBeque Phacelia

- Prior to ground-disturbing activities, revisit delineated DeBeque phacelia habitat within 200 meters of the proposed ROW during a "reliable year" and the appropriate survey season (May) to determine plant presence or absence. If a reliable year does not occur prior to initiation of the Project, habitat shall be considered occupied.
- Temporary fencing shall be installed along the boundary of the proposed disturbance that occurs within 200 meters of delineated suitable phacelia habitat and 63.7 acres of potentially suitable habitat that was not surveyed prior to development to avoid trampling by workers or equipment during disturbance related activities. Fencing shall be installed immediately prior to surface-disturbing activities and removed immediately after disturbance is complete to minimize potential collection/identification of known sites.

8. Migratory Birds. No additional measures.

9. Aquatic and Terrestrial Wildlife

- As part of the Bear Aware program, all project personnel shall review the CPW publication "Living with Bears," available online at:  
<http://wildlife.state.co.us/WildlifeSpecies/LivingWithWildlife/Mammals/Pages/LivingWithBears.aspx>

- Project staff shall report poaching incidents to Operation Game Thief.

10. Cultural Resources

- Mitigation of ground disturbance within the 100 meter buffer zones around sites 5ME19703 and 5ME19704 shall consist of data recovery of the entire thermal feature and archaeological monitoring during construction activity. These sites are located in the NE¼ of the NW¼, Section 20, Township 8S, Range 97W. Data recovery shall occur before pipeline construction in the vicinity of the two sites. Data recover shall not be initiated until additional consultation with the Ute Tribes has been completed.
- Disturbance to the two portions of the historic Reservoir Ditch (5ME17577.3 and 5ME17577.4) to be impacted by pipeline construction (unless they are bored beneath) shall be returned to pre-construction conditions. These conditions include historic contours, depth, width, berm height, and construction materials. These two segments of 5ME17577 are located in the NE¼ and SE¼ of the NW¼, Section 20, Township 8S, Range 97W; and in the NW¼ of the SE¼, Section 20, Township 8S, Range 97W.

11. Paleontological Resources

- If permission from the landowner can reasonably be obtained, a BLM-permitted paleontologist shall be present during construction in areas of Wasatch Formation bedrock outcrop adjacent to the DeBeque Pumping Station. This requirement shall not be applied if construction at the DeBeque Pumping Station would avoid bedrock outcrops.

12. Tribal and Native American Religious Concerns. No additional measures.

13. Visual Resources. No additional measures.

## **APPENDIX C**

### **Scientific Names of Plant and Animal Species Mentioned in the Text**

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**Scientific Names for Animal and Plant Species Mentioned in the Text  
(All Taxonomic Groups Arranged Alphabetically)**

**Mammals:**

Big Free-tailed Bat, *Nyctinornops macrotis*  
Bighorn Sheep, Desert subspecies, *Ovis canadensis nelsoni*  
Bighorn Sheep, Rocky Mountain subspecies, *Ovis canadensis canadensis*  
Black Bear, *Ursus americanus*  
Black-tailed Jackrabbit, *Lepus californicus*  
Botta's Pocket Gopher, *Thomomys bottae rubidus*  
Canada Lynx, *Lynx canadensis*  
Coyote, *Canis latrans*  
Desert Cottontail, *Sylvilagus audubonii*  
Elk, *Cervus elaphus*  
Fringed Myotis, *Myotis thysanodes*  
Golden-mantled Ground Squirrel, *Callospermophilus lateralis*  
Gray Fox, *Urocyon cinereoargenteus*  
Kit Fox, *Vulpes macrotis*  
Mountain Lion, *Felis concolor*  
Mule Deer, *Odocoileus hemionus*  
Northern Pocket Gopher, *Thomomys talpoides macrotis*  
Northern River Otter, *Lontra canadensis*  
Raccoon, *Procyon lotor*  
Red Fox, *Vulpes vulpes*  
Rock Squirrel, *Otospermophilus variegatus*  
Spotted Bat, *Euderma maculatum*  
Townsend's Big-eared Bat, *Corynorhinus townsendii pallescens*  
White-tailed Prairie Dog, *Cynomys leucurus*  
Wolverine, *Gulo gulo*

**Birds:**

American Kestrel, *Falco sparverius*  
Peregrine Falcon, *Falco peregrinus*  
American White Pelican, *Pelecanus erythrorhynchos*  
Bald Eagle, *Haliaeetus leucocephalus*  
Black-billed Magpie, *Pica hudsonia*  
Brewer's Blackbird, *Euphagus cyanocephalus*  
Brewer's Sparrow, *Spizella breweri*  
Brown-headed Cowbird, *Molothrus ater*  
Chipping Sparrow, *Spizella passerina*  
Common Nighthawk, *Chordeiles minor*  
Cooper's Hawk, *Accipiter cooperii*  
Ferruginous Hawk, *Buteo regalis*  
Gambel's Quail, *Callipepla gambelii*  
Golden Eagle, *Aquila chrysaetos*  
Gray Vireo, *Vireo vicinior*  
Great Horned Owl, *Bubo virginianus*  
Greater Sage-grouse, *Cetrocercus urophasianus*  
Greater Sandhill Crane, *Grus canadensis tabida*  
Gunnison Sage-grouse, *Cetrocercus minimus*

Hermit Thrush, *Catharus guttatus*  
Juniper Titmouse, *Baeolophus griseus*  
Lazuli Bunting, *Passerina amoena*  
Long-billed Curlew, *Numenius americanus*  
Long-eared Owl, *Asio otus*  
Mexican Spotted Owl, *Strix occidentalis lucida*  
Mountain Bluebird, *Sialia currucoides*  
Northern Goshawk, *Accipiter gentilis*  
Northern Harrier, *Circus cyaneus*  
Northern Saw-whet Owl, *Aegolius acadicus*  
Pinyon Jay, *Gymnorhinus cyanocephalus*  
Red-tailed Hawk, *Buteo jamaicensis*  
Rock Wren, *Salpinctes obsoletus*  
Sage Thrasher, *Oreoscoptes montanus*  
Turkey Vulture, *Cathartes aura*  
Vesper Sparrow, *Pooecetes gramineus*  
Western Burrowing Owl, *Athene cunicularia*  
Western Screech Owl *Megascops kennicottii*  
Western Snowy Plover, *Charadrius alexandrinus nivosus*  
Western Wood-pewee, *Contopus sordidulus*  
White-faced Ibis, *Plegadis chihi*  
White-throated Swift, *Aeronautes saxatalis*  
Wild Turkey, *Meleagris gallopavo*  
Yellow-billed Cuckoo, Western Population Segment, *Coccyzus americanus*

**Amphibians and Reptiles:**

Canyon Treefrog, *Hyla arenicolor*  
Great Basin Spadefoot, *Spea intermontana*  
Longnose Leopard Lizard, *Gambelia wislizenii*  
Northern Leopard Frog, *Lithobates pipiens*

**Fish:**

Bluehead Sucker, *Catostomus discobolus*  
Bonytail, *Gila elegans*  
Brook Trout, *Salvelinus fontinalis*  
Brown Trout, *Salmo trutta*  
Colorado Pikeminnow, *Ptychocheilus lucius*  
Common Carp, *Cyprinus carpio*  
Cutthroat Trout, Colorado/Gunnison Lineage, *Oncorhynchus clarki* "green"  
Cutthroat Trout, Yampa/White River Lineage, *Oncorhynchus clarki* "blue"  
Flannelmouth Sucker, *Catostomus latipinnis*  
Humpback Chub, *Gila cypha*  
Mountain Sucker, *Catostomus platyrhynchus*  
Mountain Whitefish, *Prosopium williamsoni*  
Rainbow Trout, *Oncorhynchus mykiss*  
Razorback Sucker, *Xyrauchen texanus*  
Roundtail Chub, *Gila robusta*  
Speckled Dace, *Rhinichthys osculus*  
White Sucker, *Catostomus commersoni*  
Green Sunfish, *Lepomis cyanellus*  
Largemouth Bass, *Micropterus salmoides*

Mottled Sculpin, *Cottus bairdi*

**Plants:**

Aromatic Indian Breadroot, *Pedimelum aromaticum*  
Big Sagebrush, *Artemisia tridentata*  
Canada Thistle, *Cirsium arvense*  
Cathedral Bluffs (Sun-loving) Meadowrue, *Thalictrum heliophilum*  
Chicory, *Chicorium intybus*  
Colorado Hookless Cactus, *Sclerocactus glaucus*  
Cottonwood, *Populus* sp.  
DeBeque Milkvetch, *Astragalus debequaeus*  
DeBeque Phacelia, *Phacelia submutica*  
Dolores River Skeleton Plant, *Lygodesmia doloresensis*  
Douglas Rabbitbrush, *Chrysothamnus viscidiflorus*  
Downy Brome (Cheatgrass), *Bromus tectorum*  
Eastwood Monkey-flower, *Mimulus eastwoodiae*  
Ferron's Milkvetch, *Astragalus musiniensis*  
Field Bindweed, *Convolvulus arvensis*  
Fisher Milkvetch, *Astragalus piscator*  
Gambel Oak, *Quercus gambelii*  
Grand Buckwheat, *Eriogonum contortum*  
Grand Junction Milkvetch, *Astragalus linifolius*  
Grand Junction Suncup, *Camissonia eastwoodiae*  
Greasewood, *Sarcobatus vermiculatus*  
Gypsum Valley Cat-eye, *Cryptantha gypsophila*  
Halogeton, *Halogeton glomeratus*  
Hoary Cress, *Lepidium draba*  
Horseshoe Milkvetch, *Astragalus equisolensis* (desperatus var. neeseae)  
Jones Blue Star, *Amsonia jonesii*  
Kachina Fleabane (Daisy), *Erigeron kachinensis*  
Mountain Mahogany, *Cercocarpus montanus*  
Narrowstem Gilia, *Aliciella* (Gilia) *stenothysra*  
Naturita Milkvetch, *Astragalus naturitensis*  
Osterhout Cryptantha, *Cryptantha* (*Oreocarya*) *osterhoutii*  
Parachute Beardtongue, *Penstemon debilis*  
Piceance Bladderpod, *Lesquerella parviflora*  
Pinyon Pine, *Pinus edulis*  
Plains Prickly-pear Cactus, *Opuntia polyacantha*  
Ponderosa Pine, *Pinus ponderosa*  
Redstem Filaree, *Erodium cicutarium*  
Roan Cliffs Blazingstar, *Mentzelia rhizomata* (*Nuttallia* [*Mentzelia*] *argilosa*)  
Russian Knapweed, *Acroptilon* (*Centaurea*) *repens*  
Russian Olive, *Elaeagnus angustifolia*  
San Rafael milkvetch, *Astragalus rafaensis*  
Shadscale Saltbush, *Atriplex confertifolia*  
Tamarisk (Saltcedar), *Tamarix ramosissima*, *Tamarix parviflora*  
Tufted Green Gentian (Fraseria), *Fraseria paniculata*  
Utah Juniper, *Juniperus osteosperma*  
Utah Serviceberry, *Amelanchier utahensis*  
Ute Ladies'-tresses Orchid, *Spiranthes diluvialis*  
Wideleaf Bisquitroot (Canyonlands Lomatium), *Lomatium latilobum*,  
Willow, *Salix* sp.